

Final Message	05
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#### Status messages

Depending on the choices made by the user, the following status messages are provided to the user for each selection identified below:

- 5 Do Not Accept Calls: "No calls will be accepted on your directlineMCI Number."
- Accept Calls: "Calls will be accepted on your directlineMCI Number."
- Guest Menu: "Lets callers select how they want to contact you."
- No Menu - Override Routing: "Routes callers to a specific destination
- 10 selected by you."
- Voicemail: "Callers will be asked to leave a voicemail."
- Pager: "Callers will be prompted to send you a page."
- Voicemail or Pager: "Callers can choose to leave you a voicemail or send you a page."
- 15 Closing Message: "Callers will hear a message asking them to try their call later."

#### **H. Guest Menu Configuration Screen**

- When Override Routing has been disabled, i.e., when Guest Menu has been selected, a Guest Menu will be presented to the guest caller. The user has
- 20 the ability to configure his Guest Menu using a guest menu configuration screen **730** (Figure **59**) to the following extent:

##### *"Find-Me Routing" Checkbox 732*

- Σ In this phase, Find-Me Routing cannot be de-selected. The check box
- 25 will be checked based on the Find-Me Flag (PIN Flags, bit 9, and the option greyed out.

Σ If the subscriber enters a 'leading 1' for a domestic number, it will be stripped from the number, and only the NPA-Nxx-xxxx will be stored in the database.

- 30 Σ When programming his 3--Number Sequence numbers, the subscriber

may select the number of rings, from 1 to 6, the system should allow before a Ring-no-Answer decision is made. The number of rings will be stored in the database in terms of seconds; the formula for calculating seconds will be: 6 \*Ring\_Limit. The default, if no value is entered, is 3 rings, or 18 seconds. When reading from the database, from 0 to 8 seconds will translate to 1 ring. A number of seconds greater than 8 will be divided by six, with the result rounded to determine the number of rings, up to a maximum of 16.

Σ Updates to the customer's record will be as follows:

10

Radio Buttons	Schedule 1/2 flags	Primary Termination and Timeout	Secondary Termination and Timeout	Tertiary Termination and Timeout
Schedules 3-Number Sequence	Both Y Both N	no change 1st entered number** and timeout	no change 2nd entered number** and timeout	no change 3rd entered number** and timeout

\*\*Domestic/international termination will be validated as described in Appendix A.

*"Leave a Voicemail" Checkbox 734*

15 Σ In this phase, Voicemail cannot be de-selected. The check box will be checked based on the Vmail Flag (PIN Flags, bit 3), and the option grayed out.

*"Send a Fax" Checkbox 736*

20 Σ In this phase, Fax cannot be de-selected. The check box will be checked based on the Fax Termination Flag (PIN Flags, bit 13), and the option greyed out.

*"Send a Page" Checkbox 738*

The user can specify whether callers will be offered the paging option by toggling the box labeled *Send me a Page*. This box corresponds directly to the Pager On/Off flag (State flags, bit 13) in the customer's directline record:

Page Checkbox	Pager On/Off flag
Checked	Y
Unchecked	N

5

#### Status messages

Find Me Routing: "Allows callers to try to 'find you' wherever you are."

Schedule Routing: "Routes callers based on your schedule."

Three Number...: "Allows callers to locate you through the three numbers."

10 1<sup>st</sup> #, 2<sup>nd</sup> #, 3<sup>rd</sup> #: "Enter telephone number."

1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> Ring Limit: "Enter the number of times to ring at this number."

Leave a Voicemail: "Allows callers to leave you a voicemail."

Send a Fax: "Allows callers to send you a fax."

15 Send a Page: "Allows callers to send you a page."

#### **I. Override Routing Screen**

Figure 60 shows an override routing screen 740, which allows a user to route all calls to a selected destination. When a user selects to route all his calls to a specific destination, bypassing presentation of the guest menu 730 of Figure 59, the Override Termination in the customer record will be updated as follows:

20

Override Routing Radio Buttons	Override Termination
Guest Menu selected	00
Voicemail	08

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Pager	07
Find-Me	06
Telephone number	Entered number**

When this option is initially selected from the Profiles screen, there will be no Override Routing setting in the user's customer record. The default  
 5 setting, when this screen is presented, will be Voicemail, if available, Find-Me if Voicemail is not available.

#### Status messages

Find Me Routing: "Allows callers to only try to 'find you' wherever you are."

10 Schedule Routing: "Routes callers based on your schedule."

Three Number...: "Allows callers to locate you through the three numbers."

1<sup>st</sup> #, 2<sup>nd</sup> #, 3<sup>rd</sup> #: "Enter telephone number."

1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> Ring Limit: "Enter the number of times to ring at this number"

15 Voicemail: "Callers will be prompted to leave you a voicemail only."

Send a Page: "Callers will be prompted to send you a page only."

Temporary Override Number: "caller will only be routed to this number you select."

20 Telephone Number Ring Limit: "Enter the number of times to ring at this number"

### **J. Speed Dial Screen**

Figure 61 shows a speed dial numbers screen 744. A user may update his  
 25 nine (9) Speed Dial numbers via the Web interface. Speed Dial numbers labeled 1 through 9 on the Web page correspond with the same Speed Dial



numbers in the customer's record. Domestic and international termination will be validated as described below.

#### Status messages

- 5 1 - 9: "Enter speed dial number <1 - 9>."

Figure **62** shows a voicemail screen **750**.

"Receive Voicemail Messages" Checkbox 752

"Page me when I receive" Checkbox

- 10 "Page me when I receive a new voicemail message" Checkbox **754**. This box corresponds directly to the Page on Vmail flag (PIN flags, bit 15) in the customer's directline record:

Pager Notification Checkbox	Page on Vmail flag
Unchecked	N
Checked	Y

- 15 Status messages

Receive voicemail...: "Callers will be able to leave you a voicemail message."

Page me each time...: "You will be paged when you receive a voicemail message."

- 20 Figure **63** shows a faxmail screen **760**.

"My primary Fax number is" Field 762

"Receive Faxmail Messages" Checkbox 764

Profile management of this item is shown as it appears on the Faxmail

- 25 Screen.

"Page me when I receive" Checkbox 766

This item appears as a "Page me when I receive a new voicemail message"

Checkbox **766**. This box corresponds directly to the Page on Fax flag (PIN flags, bit 16) in the customer's directline record:

Pager Notification Checkbox	Page on Fax flag
Unchecked	N
Checked	Y

#### 5 Status messages

Receive fax...: "Callers will be able to send you a fax."

Page me each time...: "You will be paged when you receive a fax."

Figure **64** shows a call screening screen **770**. A user may elect to screen his  
 10 calls by caller name, originating number or both name and number. The  
 Call Screening State in the customer record will be updated as follows:

Call Screening Checkbox	Radio Buttons	Call Screening State
Unchecked	n/a	00
Checked	Number Only	02
	Name Only	01
	Name and Number	03

#### Status messages

15 Allow me to screen...: "Activating this feature allows you to screen your  
 calls."

Name only: "Caller's name will be presented to answering party."

Telephone number: "Caller's telephone number will be presented to  
 answering party"

20 Name and Telephone: "Caller's name and telephone number will be

presented to answering party.”

Figures **65-67** show supplemental screens **780**, **782** and **784** used with user profile management.

5 Login Error screen 780

This error screen is presented when a login attempt has failed due to an invalid account number, passcode, or a hostile IP address. This is also the screen that is displayed when a user's token has expired and he's required to login again.

10 Update Successful screen 782

This screen is presented when an update has been successfully completed. The 'blank' will be filled in with: 'Call Routing options have ', 'Guest Menu options have ', 'Override Routing has ', 'Speed Dial Numbers have ', 'Voicemail options have', 'Faxmail options have', and 'Call Screening option has '.

15 Update Failed screen 784

This screen will be presented when a user has attempted to enter one or more invalid terminating number(s), or to update his account with a blank First number. The account will not be updated until corrections are made and all numbers are successfully validated.

In the various screens of the user interface, profile options are 'grayed out', indicating that the option is not available from the screen, based on the following flag settings:

25

Screen	Option	Dependencies
Login Screen	Login	Program (Follow-Me) Flag
Profile Screen	Accept Calls	Avail Programming Flag
	Final Routing to Voicemail	Find-Me Flag AND Voicemail Flag

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	Final Routing to Pager	Find-Me Flag AND Pager Termination Flag
	Final Routing to Voicemail or Pager	Find-Me Flag AND Voicemail Flag AND Pager Termination Flag
Guest Menu	Schedules	Find-Me AND Schedule 1 Trans populated AND Schedule 2 Trans populated
	Three-Number Sequence	Find-Me AND Domestic Termination Flag OR International Termination
	Number (1st, 2nd, 3rd)	Find-Me AND Domestic Termination Flag OR International Termination Flag
	Send a page	Pager Termination Flag
Override Routing	Schedules	Find-Me Flag AND Schedule 1 Trans populated AND Schedule 2 Trans populated
	Three-Number Sequence	Find-Me AND Domestic Termination Flag OR International Termination

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	Number (1st, 2nd, 3rd)	Find-Me Flag AND Domestic Termination Flag OR International Termination Flag
	Pager	Pager Termination Flag
	Telephone Number	Find-Me Flag AND Domestic Termination Flag OR International Termination
Speed Dial Numbers	1 - 9	Speed Dial Programming AND Domestic Completion Flag OR International Completion Flag
Voicemail screen	Page me when I receive...	Voicemail Flag AND Pager Termination Flag
Faxmail screen	Page me when I receive...	Fax Termination Flag AND Pager Termination Flag
Call Screening	Allow me to screen...	Call Screening Programming

For some of the profile options described above, validation checks are made as follows:

- Σ International numbers, with the exception of North American Dialing Plan (NADP) numbers, must be prefaced with '011', or will not be accepted for programming.

- Σ 976 blocking will be implemented as follows:

The International Blocking database will be queried, using Category 000, Type 002, , and the programmed NPA, looking for a pattern match, to

ensure that the programmed number is not a blocked Information/Adult Services number. If a match is found, programming to that number will not be allowed.

Σ Country Set blocking will be implemented as follows:

- 5 The Country Set of the directlineMCI Property record will be validated against the Country Code of the programmed number. If the terminating country is blocked the directlineMCI Country Set, programming to that number will not be allowed.

#### Programming Routing

<i>If the programmed number is:</i>	<i>Perform the following validation checks</i>
Domestic	Domestic Flag 976 Blocking
NADP	Domestic Flag 976 Blocking Cset Blocking using Term PCC, Auth Cset
International	International Flag Cset Blocking using Term CC, Auth Cset

## Programming Speed Dial Numbers

<i>If the programmed number is:</i>	<i>Perform the following validation checks</i>
Domestic	Domestic Comp Flag 976 Blocking
NADP	Domestic Comp Flag 976 Blocking Cset Blocking using Term PCC, Auth Cset
International	International Comp Flag Cset Blocking using Term CC, Auth Cset

Figure 68 is a flow chart showing how the validation for user entered speed dial numbers is carried out. The same flow chart is applicable to validation of entries by a guest on the guest screen when a call is made to a user by a non-subscriber.

The integrated switching system and packet transmission network of this invention allows the provision of an improved feature set for users. directlineMCI is a single-number access personal number, with features including Find-Me functionality, voicemail, paging, and fax store and forward services. A subscriber, or user, is asked for profile information, which is entered into his customer record in the directlineMCI database on the ISN mainframe. The product's feature set includes:

Personal Greeting: The user has the option of recording a personal greeting to be played to his guest callers. If a user records a personal greeting, it replaces the 'Welcome to directlineMCI' default greeting.

Guest Menu: The Guest Menu is defined by which features the user has subscribed to. A guest caller to a 'fully loaded' account will be presented

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options to Speak to or Page the user, Send a Fax, or Leave a Voicemail Message.

3- Number Sequence for Find-Me functionality: The system attempts to  
5 reach the user at three numbers, trying the First (Primary) number, then the  
Second(ary), then the Third (Tertiary) number. If no answer is received at  
any of these numbers, the call is treated as prescribed in Alternate Routing.

2-Level Schedule for Find-Me functionality: The system attempts to reach  
the user at two numbers, using current date/day/time information to query  
10 his schedules. Attempts are made to a number from the user's Schedule 1,  
then Schedule 2; if no answer is received, Alternate Routing defines the  
treatment.

Alternate Routing allows the user to prescribe the treatment of a guest caller  
who chose to reach him, but no answer was received at any of the attempted  
15 numbers. Options for Alternate Routing include Voicemail, Pager, a Guest's  
choice of Voicemail or Pager, or a Closing Message, asking the caller to try  
his call again at a later time.

Override Routing allows the user to disable the presentation of the Guest  
20 Menu, and prescribe a single treatment for all guest callers. Options include  
completion to a telephone number, the user's defined Find-Me sequence,  
Voicemail, or Pager.

Default Routing is the treatment of a guest caller who, when presented the  
25 Guest Menu, does not respond after three prompts. Default Routing options  
include a transfer to the Operator, completion to a telephone number, the  
Find-Me sequence, or Voicemail.

Call Screening allows the user to define whether or not he wishes callers to  
30 be announced before being connected. Options include no call screening, or  
having the caller identified by name, originating telephone number, or both  
name and number.



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The 'Place a Call' option in the user's menu allows him to make a call, and have it charged to his directlineMCI account.

Voice/Faxmail: Both voice and fax messages can be stored for later retrieval by the user. The user may opt to be notified when new voice and/or fax

5 messages are deposited into his mailbox.

The Voice / Fax Platform (VFP) has been integrated into the Intelligent Services Network (ISN), to allow the ISN applications to query its databases, and billing records to be cut directly from the VFP.

10 Among the changes to the original directlineMCI product are the following items:

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### Find-Me Routing

Find-Me Routing now has two options, selectable by the subscriber: the 3-number sequence currently implemented, or the 2-level schedule option.

- 5 The schedule option is implemented such that the subscriber's Schedule 1 translation will be treated as the primary termination, and his Schedule 2 translation will be treated as the secondary termination. Find-Me Routing is described in more detail in the Call Flow diagrams and ARU Impacts sections.

### Default Routing

- 10 Default Routing is the prescribed action the application takes when a caller does not respond to Guest Menu prompts. Options for Default Routing include a telephone number, voicemail, Find-Me routing, and Operator transfer.

### Voice/Fax Message Information

- 15 When a subscriber accesses the user menu, the application provides mailbox status information, including the number of new voice or fax messages, and if his mailbox is full. The application launches a query to the VFP database to obtain this information.

### Speed Dial

- 20 In addition to the ability to complete a call to a telephone number entered real-time, the subscriber is now able to complete to programmed Speed Dial numbers. These 9 Speed Dial numbers will be user-programmable via DTMF.

## 25 **K. ARU CALL FLOWS**

Figs. **69A** through **69AI** depict automated response unit (ARU) call flow charts showing software implementation of the directline MCI product described above, and are useful for a further understanding of the invention.

Fig. **69A** depicts the starting point for processing of an ARU call. As a call initiates, it is assumed to be a guest call. If the account to which the call is directed is not currently online, the ARU in Step **69010** plays a message indicating that calls cannot be accepted for the account, and in Step **69012** disconnects the call. If the ARU detects a fax tone on the incoming call, the ARU in Step **69014** performs the ARU Xfer to Voice/Fax Guest Fax without Annotation routine, which is described below with respect to Fig. **69L**. If no fax tone is detected, the ARU in Step **69018** performs the ARU Play Greeting routine, which is described below with respect to Fig. **69L**. The ARU then checks to see whether the subscriber has indicated an override for incoming calls. If so, in Step **69020** the ARU performs the ARU Find Me routine, specifying a parameter of "Override." The ARU Find Me routine is described below with respect to Figs. **69E** and **69F**. If override has not been specified, the ARU in Step **69022** performs the ARU Guest Menu routine, which is described below with respect to Fig. **69D**.

Fig. **69B** depicts the ARU Play Greeting routine. If a custom greeting has been recorded, the ARU plays the custom greeting in Step **69030**. Otherwise, the ARU plays a generic prerecorded greeting in Step **69032**.

Fig. **69C** depicts the ARU Play Temp Greeting routine. If a temporary greeting has been recorded, the ARU plays the temporary greeting in Step **69034**. If a custom greeting has been recorded, the ARU plays the custom greeting in Step **69036**. Otherwise, the ARU plays a generic prerecorded greeting in Step **69038**.

Fig. **69D** depicts the ARU Guest Menu routine. In Step **69040**, the ARU presents an audible menu to the caller. In the example shown, item '1' corresponds to a request to speak to a subscriber; item '2' corresponds to a request to leave a voice mail message for a subscriber; item '3' corresponds to a request to send a fax to a subscriber; and item '4' corresponds to a request to page a subscriber. In addition, a subscriber may enter his or her

passcode to gain access to the ARU as a subscriber.

If the caller requests to speak to a subscriber, the ARU checks the schedule flags associated with the caller's profile. If the subscriber's profile indicates routing by schedule, the ARU in Step **69042** performs the Find Me routine of Fig. **69E** and **69F**, using "Sched1" as the parameter. If the subscriber's profile does not indicate routing by schedule, the ARU in Step **69044** performs the ARU Find Me routine using "First" as the parameter. The ARU Find Me routine is discussed in further detail below with respect to Figs.

10 **69E** and **69F**.

If the caller requests to leave a voice mail message, the ARU checks to see whether the subscriber's mailbox is full. If the mailbox is full, a recorded message is played and the caller is returned to the guest menu. If the mailbox is not full, a recorded message is played advising the caller to hold while he is transferred to the ARU Voicemail routine in Step **69046**.

If the caller requests to send a fax, the ARU checks to see whether the subscriber's mailbox is full. If the mailbox is full, a recorded message is played and the caller is returned to the guest menu. If the mailbox is not full, a recorded message is played advising the caller to hold while he is transferred to the voice/fax routine in Step **69048**.

If the caller requests to page the subscriber, the ARU in Step **69050** performs the ARU Send Page routine, which is described with respect to Fig. **69M**, below.

If the caller enters a valid passcode, the ARU in Step **69052** performs the ARU User Call routine, which is described with respect to Fig. **69P**, below.

30

Figs. **69E** and **69F** depict the operation of the ARU Find Me routine. As shown in Step **69060**, the ARU Find me routine takes a single parameter

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Term\_Slot, which is set by the caller and used by the ARU performing the ARU Find Me routine to choose among alternative courses of action. If Term\_Slot is set to "Find Me", this indicates that the ARU is to use the default method of determining the subscriber's current number. This value  
5 may be set, for example, for override or default processing. If the subscriber's profile includes schedule flags, the ARU performs the ARU Find Me routine using the "Sched1" parameter as shown in Step **69062**; if not, the ARU performs the ARU Find Me routine using the first telephone number in the list of numbers for the subscriber, as shown in Step **69061**.

10

If Term\_Slot is set to "Voicemail," the ARU plays a message to the caller that the subscriber has requested that the caller leave a voice mail message. If the subscriber's mailbox is not full, the ARU in Step **69064** performs the ARU Xfer to Voice/Fax Guest Voice routine, depicted in Fig. **69K**. That  
15 routine returns if unsuccessful, in which case a message is played indicating that the caller should try the call later, and the caller is disconnected. Likewise, if the subscriber's mailbox is full, the ARU plays messages indicating that the mailbox is full and that the caller should try the call later, and the caller is disconnected.

20

If Term\_Slot is set to "Pager," the ARU plays a message to the caller that the subscriber has requested that the caller leave a request to page the subscriber. The ARU then performs the ARU Send Page routine, which is described with respect to Fig. 69M, below. That routine returns if  
25 unsuccessful, in which case a message is played indicating that the caller should try the call later, and the caller is disconnected.

30

If Term\_Slot is set to any POTS ("Plain Old Telephone Service") value (such as Sched1, Sched2, First, Second, or Third), the POTS value indicates that the subscriber has specified that incoming calls be sent using the standard telephone system, and the ARU has been directed to use the particular scheduled or selected telephone number. In Step **69070**, the ARU performs

the ARU Record Name routine to acquire a digital recording of the caller's identification. The ARU Record Name routine is described in detail with respect to Fig. **69H**, below. The ARU plays an appropriate message for the caller (e.g., "Please hold while I try to reach your party" on the first attempt, and "I am still trying to reach your party; please continue to hold" for subsequent attempts). In Step **69071**, the ARU places the caller on hold and launches the call to the selected telephone number. If the call is answered by an individual, the ARU in Step **69072** performs the ARU Connect Call routine, discussed below with respect to Fig. **69I**. If the line is busy, the ARU in Step **69074** performs the ARU Alternate Routing routine of Fig. **69N**. If the ARU detects an answering machine, it checks to see whether the subscriber has requested that the ARU roll over to the next alternative number upon encountering an answering machine. If not, the ARU connects the call. Otherwise, the ARU selects the next number in rotation to call and re-performs the ARU Find Me routine using the newly-selected number.

If there is neither a live answer, a line busy signal, nor an answering machine answer, then if Term\_Slot is set to "Operator," the ARU performs the ARU Guest Xfer to MOTC routine, described below with respect to Fig. **69M**, to transfer the call to the operator. Otherwise, the ARU selects the next telephone number, if any, and re-invokes the ARU Find Me routine with the new number. If no more numbers to check remain, the ARU in Step **69084** performs the ARU Alternate Routing routine of Fig. **69N**.

25

Fig. **69G** depicts the ARU Record Name routine. This routine is used to record the name of the caller if the subscriber has specified call screening, either by name or by name and ANI. If the subscriber has specified call screening, the ARU checks to see whether the caller's name has been recorded on a previous pass. If not, the caller is prompted to supply a name, and the audible response is recorded in Step **69090**. If the subscriber has not specified either form of call screening, the ARU Record

30

Name routine returns without recording the caller's name.

Fig. **69H** depicts the ARU Guest Xfer to MOTC routine. This routine plays a prerecorded message asking the caller to hold, and then transfers the call to the operator in Step **69092**.

Fig. **69I** depicts the ARU Connect Call routine. If operator assistance is required to complete the call, the ARU performs the ARU Guest Xfer to MOTC routine of Fig. **83H**. If the subscriber has not requested call screening, the call is connected to the subscriber. If the subscriber has selected call screening, the ARU plays a set of informational messages to the subscriber. The ARU plays "You have a call from," followed by a message identifying the caller, depending on the options chosen by the subscriber and whether a caller name had been recorded. If the name is not recorded, the identifying message **69106** gives only the ANI from which the call was placed. If a name was recorded, the identifying message includes the name as in Step **69107** if the subscriber has requested screening by name, or the name and ANI as in Step **69108** if the subscriber has selected screening by name and ANI. After prompting the subscriber with the identifying information, the ARU in Step **69110** performs the ARU Gain Acceptance routine depicted in Fig. **69J**.

Fig. **69J** depicts the ARU Gain Acceptance routine called from Step **69110**. The ARU checks whether the subscriber has an available mailbox that is not full. If so, the ARU prompts the subscriber to indicate whether to take the call or to have the call directed to voice mail. If the mailbox is full or not available, the ARU prompts the subscriber whether to take the call or direct the caller to call back later. If the subscriber indicates that he will take the call (e.g., by pressing '1'), the ARU connects the call in Step **69124**. Otherwise, the ARU acknowledges the refusal with an appropriate informational message (e.g., "Your caller will be asked to leave a voice mail message" or "Your caller will be asked to try again later," depending on the

condition of the mailbox determined in Step **69120**). The ARU disconnects the subscriber and takes the calling party off hold. The ARU plays a recording to the calling party indicating that it was unable to reach the subscriber and optionally prompting the caller to leave a voice mail message.

5 If no mailbox is available, the caller is disconnected. If a non-full mailbox is available, the ARU in Step **69128** performs the ARU Xfer to Voice/Fax Guest Voice routine of Fig. **69K**. Following this routine, the ARU plays a message asking the caller to call back later, and disconnects.

10 Fig. **69K** depicts the ARU Xfer to Voice/Fax Guest Voice routine, which connects the caller to the VFP to leave a voice mail message. The ARU attempts to acquire a handshake with the VFP. If the handshake is successful, the ARU connects the call in Step **69130**. If unsuccessful, the ARU plays an error message in Step **69132** and exits. Fig. **69L** depicts the  
15 ARU Xfer to Voice/Fax Guest Fax w/ or w/out Annotation routine, which connects the caller to the VFP to transmit a fax. The ARU attempts to acquire a handshake with the VFP. If the handshake is successful, the ARU connects the call in Step **69140**. If unsuccessful, the ARU plays an error message in Step **69142** and exits. The routines of Figs. **68K** and **69L** are  
20 similar except for the service requested of the VFP and the contents of the error message played to the caller.

Fig. **69M** depicts the ARU Send Page routine, which initiates a call to the subscriber's paging service. In Step **69150** the ARU prompts the caller to  
25 enter the telephone number that should be provided to the addressed pager. This prompt is repeated up to three times until a callback number is received. If no callback number after three prompts, the ARU performs the ARU Guest Xfer to MOTC routine, which transfers the caller to the operator. This permits a caller without DTMF-enabled equipment by which to enter a  
30 callback to provide the number to an operator who can enter it on his or her behalf. In Step **69158**, the ARU plays a recording to the caller, enabling the caller to correct a number entered in error, or to confirm that the correct



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number has been entered. In Step **69160**, the ARU places a call to the subscriber's paging service, using the data provided by the caller to indicate to the paging service the number to be displayed on the pager. If the call to the paging service is successful, the ARU plays a message indicating success  
5 in Step **69164** and disconnects in Step **69166**. If the call to the paging service is unsuccessful, the ARU in Step **69162** plays a message indicating the failure and returns, whereupon the ARU may optionally present the caller with additional options.

10 Fig. **69N** depicts the ARU Alternate Routing routine. The ARU performs this routine to route calls that cannot be routed to the subscriber. If the subscriber has indicated that such unrouted calls are to be routed to his or her paging service, the ARU in Step **69170** plays a recording indicating that the caller may send a page. The ARU then in Step **69172** performs the ARU  
15 Send Page routine that has been described with respect to Fig. **69M**. If the page was unsuccessful, the ARU plays a message indicating the failure and disconnects the caller in Step **69174**. If the subscriber has indicated that unrouted calls are to be routed to voice mail, the ARU in Step **69173** plays a recording indicating that the caller may leave a voice mail message. If the  
20 subscriber's mailbox is not full, the ARU performs the ARU Xfer to Voice/Fax Guest Voice routine. If that routine returns, the attempt to leave the voice mail was unsuccessful, and the ARU plays a message indicating the failure and disconnects the caller in Step **69184**. If the mailbox is full, the ARU plays a recording informing the caller of that condition and then  
25 disconnects the caller in Step **69184**. If the subscriber has indicated a "guest option," the ARU in Step **69180** performs the ARU Alternate Routing Guest Option routine of Fig. **69O**; otherwise the ARU disconnects the caller in Step **69182**.

30 Fig. **69O** depicts the ARU Alternate Routing Guest Option routine. This routine permits the guest to select whether to leave a voice mail or send a page if the subscriber is unreachable. The ARU in Step **69190** presents the

caller with a menu of available routing options, here, '1' to leave a voice mail, and '2' to send a page. If the caller request to send a page, then the ARU in Step **69200** performs the ARU Send Page routine of Fig. **69M**. If the Send Page routine fails, the ARU plays a diagnostic recording to the caller and disconnects the caller in Step **69202**. If the caller requests to leave a voice mail, the ARU checks to see whether the subscriber mailbox is full. If the mailbox is not full, the ARU performs the ARU Xfer to Voice/Fax Guest Voice routine of Fig. **69K**. If the routine returns, that indicates that it was not successful. In that case, or if the mailbox was full, the ARU plays a prerecorded message indicating that the voicemail could not be sent, and in Step **69195** prompts the caller to indicate whether he would like to send a page instead. If the caller selects an option to send a page, the ARU performs the ARU Send Page routing in Step **69200**, as if the caller had initially selected that option. If the ARU Send Page routine is not successful, the ARU plays a diagnostic message and disconnects the caller in Step **69202**.

Fig. **69P** depicts the main menu for the ARU User Call routine for processing a call from a subscriber. This routine is performed as Step **69052** in the ARU Guest Menu routine as depicted in Fig. **69D**, if the caller enters a valid passcode. After playing an introductory welcome greeting, the ARU checks to see if the subscriber's mailbox is full. If the mailbox is full, the ARU plays a message informing the subscriber of this condition in Step **69300**. After playing this warning, or if the mailbox is not full, the ARU in Step **69302** plays a status recording informing the subscriber of the number of new voicemail messages and fax messages stored for the subscriber.

In Step **69304**, the ARU plays a menu for the subscriber. In the example shown, item '1' corresponds to a request to change call routing; item '2' corresponds to a request to send or retrieve mail; item '3' corresponds to a request to place a call; item '4' corresponds to a request for the administration menu; and item '0' corresponds to a request to be transferred

to customer service.

If the subscriber selects the option to change call routing, the ARU in Step **69310** performs the ARU Change Routing routine, described below with respect to Fig. **69T**. If the subscriber selects the option to send and retrieve mail, the ARU plays a prerecorded message asking the subscriber to hold and then in Step **69312** performs the ARU Xfer to Voice/Fax Subscriber Send/Retrieve routine, described with respect to Fig. **69Q**, below. If the subscriber selects the option to place a call, the ARU in Step **69314** presents the subscriber with a menu querying the type of call desired to be placed. If the subscriber responds with an international or domestic telephone number, or with a previously specified speed-dial number corresponding to an international or domestic telephone number, the ARU in Step **69316** connects the call. If the subscriber requests operator assistance, the ARU in Step **69318** performs the ARU User Xfer to MOTC routine to transfer the subscriber to the operator. If the subscriber cancels the call request, the ARU returns to Step **69304**. If, from the main menu presented in Step **69304**, the ARU performs the Administration routine, described below with respect to Fig. **69P**. If the subscriber requests customer service, the ARU performs the ARU User Xfer to Customer Service routine of Fig. **69AH**, described below.

Fig. **69Q** depicts the ARU Xfer to Voice/Fax Subscriber Send/Receive routine, which connects the subscriber to the VFP to send and retrieve voice mail messages. The ARU attempts to acquire a handshake with the VFP. If the handshake is successful, the ARU connects the call in Step **69330**. If unsuccessful, the ARU plays an error message in Step **69332** and exits.

Fig. **69R** depicts the ARU Xfer to Voice/Fax Subscriber Send/Receive routine, which connects the subscriber to the VFP to manage the subscriber's distribution lists. The ARU attempts to acquire a handshake with the VFP. If the handshake is successful, the ARU connects the call in

Step **69340**. If unsuccessful, the ARU plays an error message in Step **69342** and exits.

Fig. **69S** depicts the ARU Xfer to Voice/Fax Subscriber Record Name routine, which connects the subscriber to the VFP to record the name that will be used in VFP-originated messages identifying the subscriber. The ARU attempts to acquire a handshake with the VFP. If the handshake is successful, the ARU connects the call in Step **69350**. If unsuccessful, the ARU plays an error message in Step **69352** and exits. The routines of Figs. **69Q**, **69R**, and **69S** are similar except for the service requested of the VFP and the contents of the error message played to the subscriber.

Fig. **69T** depicts the ARU Change Routing routine, by which the subscriber modifies the routing options associated with his or her service. In Step **69390**, the ARU presents a menu of options to the subscriber. If the subscriber selects the option for Find-Me routing, the ARU performs the ARU Change Find-Me Routing routine, described below with respect to Fig. **69U**. If the subscriber selects the option for Override routing, the ARU in Step **69400** plays a message indicating the subscriber's present override routing setting and in Step **69404** presents the subscriber with a menu to select a new option. If the subscriber selects a change in option, the ARU performs, as Step **69408**, the ARU Program routine to set the override option as specified, by passing the parameters of "override" and the selected option. If the subscriber selects the "Cancel" option, the ARU returns to Step **69390**.

If, from the ARU Change Routing menu of Step **69390** the subscriber selects the "Alternate Routing" option, the ARU in Step **69409** plays a message indicating the subscriber's present alternate routing setting and in Step **69410** presents the subscriber with a menu to select a new option. If the subscriber selects a change in option, the ARU performs, as Step **69414**, the ARU Program routine to set the alternate option as specified, by passing the

parameters of “alternate” and the selected option. If the subscriber selects the “Cancel” option, the ARU returns to Step **69390**.

5 If, from the Change Routing menu of Step **69390**, the subscriber selects the “cancel and return” option, the ARU in Step **69412** returns to the user menu of Fig. **69P**.

Fig. **69U** depicts the ARU Change Find-Me Routing routine. In Step **69420**, the ARU checks to see whether the subscriber’s Find-Me routing is by  
10 schedule. If not, in Step **69422**, the ARU plays a message indicating that the routing is set to attempt three successive telephone numbers, and in Step **69424** performs the ARU Change 3-Number Sequence routine, which is described below with respect to Fig. **69V**. If the subscriber’s Find-me routing is by schedule, the ARU in Step **69426** plays a message indicating  
15 that the subscriber’s Find-Me routing is currently set by schedule, and in Step **69428** presents the subscriber with a Change Schedule Routing menu. If the subscriber selects the option to change to 3-Number routing, the ARU in Step **69430** plays a message that the routing is set to 3-Number sequence and in Step **69432** performs the ARU Change 3-number Sequence  
20 routine of Fig. **69V**. If the subscriber selects the Save and Continue option, the ARU in Step **69434** plays a message that the subscriber’s Find-Me routing is set to routing by schedule, and in Step **69436** performs the ARU Change Routing routine. Step **69436** and the ARU Change Routing routine are also performed if the subscriber selects the option to cancel and return.

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Fig. **69V** depicts the ARU Change 3-Number Sequence routine, which permits the subscriber to alter contents and order of the three alternate numbers used by the ARU Find-Me routine of Fig. **69E** and **69F**. In Step  
30 **69440**, the ARU presents the subscriber with a menu of options. If the subscriber selects an option to change one of the three telephone numbers, the ARU in Step **69442** plays a recorded message indicating the current setting for the number, and then in Step **69444** performs the Program

routine, passing to the routine a parameter identifying the number to be changed and indicating the POTS number to which it is to be changed. The ARU then returns to Step **69440**. If the subscriber selects an option to review the current settings, the ARU in Step **69446** plays a series of  
5 messages disclosing the settings for each of the three numbers. The ARU then returns to Step **69440**.

If the subscriber selects an option to change the schedule routing, the ARU in Step **69450** checks whether the subscriber is eligible for schedule  
10 routing. If so, in Step **69454** the ARU plays a message indicating that the Find-Me routing is set to the subscriber's schedule and in Step **69456** toggles the schedule setting to enable it. After toggling the setting, the ARU in Step **69450** returns to the ARU Change Routing routine of Fig. **69T**. If  
15 schedule routing is not an option for this subscriber, the ARU plays a diagnostic message indicating that schedule routing is not available and that the subscriber may contact Customer Service to obtain the option. The ARU then returns to Step **69440**.

If the subscriber selects an option indicating cancel and return, the ARU  
20 returns to the ARU Change Routing routine of Fig. **69T**.

Fig. **69W** depicts the ARU Administration routine. In Step **69460**, the ARU provides the subscriber with a menu of options. In the example shown, item  
25 '1' corresponds to a request to maintain the subscriber's broadcast or speed-dial lists; item '2' corresponds to a request to record a greeting; and item '3' corresponds to a request to activate or deactivate features. If the subscriber requests list maintenance the ARU, in Step **69462** presents the subscriber with a menu of options. If the subscriber selects an option to maintain his or her broadcast lists, the ARU in Step **69464** performs the ARU Xfer to  
30 Voice/Fax Subscriber Distribution Lists routine of Fig. **69R**. After performing that routine, the ARU in Step **69468** performs the ARU Lists routine of Fig. **69W**. If the subscriber selects the option to maintain the

speed-dial list, the ARU in Step **69470** performs the ARU Change Speed-Dial Numbers routine of Fig. **69X**. If the subscriber selects an option to cancel and return, the ARU returns to Step **69460**.

- 5 If, in response to the menu presented in Step **69460**, the subscriber selects an option to record greetings, the ARU in Step **69474** presents the subscriber with a menu of options. In the example depicted, item '1' corresponds to a request to modify the subscriber's welcome message; item '2' corresponds to a request to modify the name associated with subscriber's mailbox. If the subscriber selects the option to modify the welcome message, the ARU in Step **69476** performs the ARU Play Greeting routine of Fig. **69B** to play the current welcome message, and in Step **69478** performs the ARU Change Greeting routine of Fig. **69Y**. If the subscriber selects an option to modify the mailbox name, the ARU plays a message requesting the subscriber to hold and in Step **69480** perform the ARU Xfer to Voice/Fax Subscriber Mailbox Name routine, described previously with respect to Fig. **69S**. After performing this routine, the ARU returns to Step **69474**. If the subscriber, in response to the menu presented in Step **69474**, indicates that the request to modify greetings should be canceled (e.g., by pressing the asterisk button), the ARU returns to Step **69460**.

- If, in response to the menu presented in Step **69460**, the subscriber selects an option to activate or deactivate features, the ARU in Step **69484** performs the ARU Feature Activation routine, which is described below with respect to Fig. **69Z**. If the subscriber instead indicates that the request to modify greetings should be canceled (e.g., by pressing the asterisk button), the ARU returns to the ARU User Menu routine, which is depicted as Step **69304** in Fig. **69P**.

- 30 Fig. **69X** depicts the ARU Change Speed Dial Numbers routine. In Step **69490**, the ARU provides the subscriber with a menu of options corresponding to particular speed dial numbers. For example, item '1'

corresponds to the first speed dial number, item '2' corresponds to the second speed-dial number, etc., through item '9', which corresponds to the ninth speed-dial number. When the subscriber selects one of these options, the ARU in Step **69492** plays a message indicating the current setting for the selected speed-dial number. In Step **69494**, the ARU performs the ARU Program routine, described below with respect to Fig. **69AA**, specifying parameters of "Spd\_Dial\_*n*" to indicate the speed dial number to being programmed (where *n* is replaced by a digit corresponding to the number of the addressed speed dial button) and the POTS number to which the specified speed dial number is to be set. The ARU then returns to Step **69490**. If the subscriber selects an option (indicated in the example as an asterisk) to cancel the Change Speed Dial Numbers request, the ARU returns to Step **69462** as depicted in Fig. **69W**.

Fig. **69Y** depicts the ARU Change Greeting routine. In Step **69500**, the ARU presents a menu to the subscriber corresponding to available options. For example, item '1' corresponds to a request to record a custom greeting, and item '2' corresponds to a request to use the standard system greeting. If the subscriber selects the option to record a custom greeting, the ARU in Step **69502** presents a menu of options related to the customized greetings. In the example shown, item '1' corresponds to a request to review the present contents of the subscriber's custom greeting and item '2' corresponds to a request to replace the currently recorded custom greeting with a new recorded custom greeting. The octothorp ('#') corresponds to a request to save the contents of the greetings, and the asterisk (\*) corresponds to a request to cancel and return.

If the subscriber selects an option to review the present contents of the subscriber's custom greeting, the ARU in Step **69504** performs the ARU Play Temp Greeting routine, previously described with respect to Fig. **69C**, and returns to Step **69502**. If the subscriber selects an option to replace the currently recorded custom greeting with a new recorded custom greeting,



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the ARU in Step **69506** prompts the subscriber to begin recording the new greeting and in Step **69506** records the new greeting. After recording the greeting, the ARU returns to Step **69502**. After recording a greeting, a subscriber may request that the newly recorded greeting be saved. If the  
5 subscriber selects saving the greeting, the ARU in Step **69510** saves the recorded greeting to disk, overwriting the previous contents of the greeting file, and in Step **69514** plays a message indicating that the new greeting has been stored. After storing the greeting, the ARU performs the ARU Administration routine previously described with respect to Fig. **69W**. If, in  
10 response to the menu presented by the ARU in Step **69502**, the subscriber cancels the request to modify greetings, the ARU in Step **69518** performs the ARU Greetings routine, previously described with respect to Fig. **69W**.

If, in response to the menu presented in Step **69500**, the subscriber selects  
15 an option to use the system greeting (i.e., a default greeting that does not identify the subscriber), then the ARU in Step **69520** erases any previously-recorded greeting and in Step **69522** plays a prerecorded message that callers will now hear the system greeting instead of a personalized greeting. The ARU then returns in Step **69525** to the ARU Administration routine,  
20 previously described with respect to Fig. **69W**. The ARU also returns in Step **69525** if the subscriber selects an option to cancel and return.

Fig. **69Z** depicts the ARU Feature Activation routine. In Step **69530**, the ARU presents a menu to the subscriber corresponding to available options.  
25 For example, item '1' corresponds to a request to set the Call Screening option; item '2' corresponds to a request to activate or deactivate a pager recipient; option '3' corresponds to an request to set pager notification; and option '4' corresponds to a request to activate or deactivate an account. If the subscriber selects the call screening option, the ARU in Step **69532**  
30 plays a recording indicating the current setting of the call screening option. In Step **69534**, the ARU presents the subscriber with a list of options relating to call screening. In this example, item '1' corresponds to a request

to select screening by ANI (telephone number) only; item '2' corresponds to a request to select screening by name only; item '3' corresponds to select screening by both ANI and name; and item '4' corresponds to a request to turn call screening off completely. If the subscriber selects one of these options, the ARU in Step **69536** performs the ARU Program routine, described below with respect to Fig. **69AA**, passing it a first parameter to indicate that the screening option is desired to be altered, and a second parameter indicating the value to which the option should be set. Following Step **69536**, the ARU returns to Step **69530**. Likewise, if the subscriber selects a cancel and return option in Step **69534**, the ARU returns to Step **69530**.

If the subscriber selects an option to activate or deactivate a pager, the ARU in Step **69538** plays a recorded message indicating the new status of the pager notification option. In Step **69540**, the ARU toggles the current status of the pager option (i.e., enables the option if it is currently disabled, or disables the option on if it is currently enabled). After the toggle, the ARU returns to Step **69530**.

If the subscriber selects the pager notification option, the ARU in Step **69542** plays a recording indicating the current setting of the call screening option. In Step **69544**, the ARU presents the subscriber with a list of options relating to pager notification. In this example, item '1' corresponds to a request to select notification by pager only of incoming voicemails; item '2' corresponds to a request to select notification by pager only of incoming faxes; item '3' corresponds to select request to select notification by pager both for incoming voicemails and for incoming faxes; and item '4' corresponds to a request to turn call pager notification completely. If the subscriber selects one of these options, the ARU in Step **69546** performs the ARU Program routine, described below with respect to Fig. **69AA**, passing it a first parameter to indicate that the pager notification option is desired to be altered, and a second parameter indicating the value to which the option

should be set. Following Step **69546**, the ARU returns to Step **69530**. Likewise, if the subscriber selects a cancel and return option in Step **69544**, the ARU returns to Step **69530**.

- 5 If the subscriber selects an option in Step **69530** to activate or deactivate his or her account, the ARU in Step **69550** plays a recorded message indicating the new account status. In Step **69552**, the ARU toggles the current status of the account option (i.e., activates the option if it is currently deactivated, or deactivates the option on if it is currently  
10 activated). After the toggle, the ARU returns to Step **69530**.

If the subscriber in Step **69530** selects the cancel and return option, the ARU returns to the ARU Administration routine, described above with respect to Fig. **69W**.

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- Fig. **69AA** depicts the ARU Program routine, which is performed by the ARU to set options selected by the subscriber. As shown in Step **69560**, the Program routine takes as input two parameters: Term\_Slot, which identifies the option whose value is being altered, and Term, whose value indicates the  
20 value to which the option addressed by Term\_Slot is being set. In Step **69562**, the ARU checks the type of value specified in Term. If the term value is a POTS identifier (i.e. a telephone number, such as a telephone number being programmed into a speed-dial number, as in Step **69494** in Fig. **69X**), the ARU in Step **69564** prompts the subscriber to enter a POTS  
25 number. If the subscriber enters a domestic or international number, or an option ('1' in the example shown) to erase a previously stored POTS value, the ARU in Step **69566** plays a message indicating the new setting to which the addressed slot will be changed. In Step **69568**, the ARU prompts the subscriber to correct the number by reentering a new number, to confirm  
30 the request, or to cancel the request. If the subscriber selects the option to correct the number, the ARU returns to Step **69564**. If the subscriber confirms the request, the ARU in Step **69570** stores the Term parameter

value as the variable addressed by the Term\_Slot parameter. If the subscriber cancels the request, the ARU returns to the calling routine in Step **69572**. The ARU also returns to the calling routine in Step **69572** if the subscriber selects a cancel option when prompted for a POTS number in  
5 Step **69564**.

If the Term value is not a POTS identifier, the ARU in Step **69580** plays a message that informs the subscriber that the addressed option is about to be changed. In Step **69582**, the ARU prompts the subscriber to confirm or  
10 cancel the request. If the subscriber opts to confirm the request, the ARU in Step **69584** stores the Term parameter value as the variable addressed by the Term\_Slot parameter and returns to the calling routine in Step **69572**. If the subscriber cancels the request, the ARU returns to the calling routine in Step **69572** without storing the value.

15 Fig. **69AI** depicts the ARU User Xfer to Customer Service routine. In Step **69592**, the ARU plays a prerecorded message to the subscriber asking the subscriber to hold. In Step **69594**, the ARU then transfers the subscriber to customer service.

20 Fig. **69AB** depicts the ARU Validate Guest Entry routine. This routine is used by the ARU to determine whether an attempt by a guest to use the VFP guest facilities is valid. The ARU permits up to 3 attempts for the guest to enter his or her identification information. For the first two invalid attempts, the ARU, in  
25 Step **69610**, returns a status that the guest entry was invalid. On a third attempt, the ARU in Step **69615** performs the ARU Find-Me routine of Figs. **69E** and **69F**. If a guest entry was received, the ARU in Step **69617** checks to see whether a guest entry was one of the available choices on the applicable menu. If not, the ARU in Step **69620** plays a recorded message that the guest  
30 entry option is not available. If this is the third invalid entry, the ARU in Step **69624** performs the ARU Guest Xfer to MTOC routine of Fig. **69H**. If it is the first or second invalid entry, the routine in Step **69622** returns with an

indication that the guest entry was invalid. If the ARU determines in Step **69617** that the guest entry was a proper menu option, it returns a valid status in Step **69626**.

5 Fig. **69AC** depicts the ARU Validate User Entry routine, which is used by the ARU to validate an attempt by a subscriber to use subscriber services of the VFP. If no user entry is received, the ARU in Step **69630** plays a diagnostic message that no entry was received. If an entry was received, the ARU checks in Step **69634** whether the menu to which the subscriber was responding  
10 includes an option for user entry. If so, the ARU returns a valid status in Step **69636**. If not, the ARU in Step **69638** plays a diagnostic message that that option is not available. If either no entry was received or the entry was not valid for the menu, the ARU in Step **69632** checks to see whether this is the third failure to specify subscriber information. If so, the ARU in Step **69640**  
15 performs the ARU User Xfer to Customer Service routine of Fig **89AI**. If this is the first or second failed entry, the ARU returns an invalid status in Step **69642**.

Fig. **69AD** depicts the ARU Validate Passcode Entry routine, which is used by  
20 the ARU to authenticate a passcode entered by a subscriber. In Step **69650**, the ARU checks to see whether the passcode entered matches the passcode for the specific subscriber. If so, in Step **69652** the ARU returns with a valid status. If the entry is not valid, the ARU in Step **69654** plays a recorded message that the entry is not valid. The ARU allows two attempts to specify a  
25 valid passcode. In Step **69656**, the ARU checks to see whether this is the second attempt to enter a passcode. If this is the second attempt, the ARU in Step **69660** performs the ARU User Xfer to Customer Service routine, which is described above with respect to Fig. **69AI**. If this is not the second failure, the ARU in Step **69658** prompts the subscriber to enter a valid passcode and  
30 returns to Step **69650**.

Fig. **69AE** depicts the ARU Validate Completion routine, used by the ARU to

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validate the entry of a valid telephone number. In Step **69670** the ARU checks to see whether a valid user entry had been received. If not, the ARU checks to see if this is the third invalid entry attempted. If not, the ARU in Step **69672** returns an indicator that no valid entry was received. If this is the third attempt, in Step **69674**, the ARU plays a message and in Step **69676** performs the ARU Xfer User to MTOC routine, which is described above with respect to Fig. **69H**.

If a valid user entry was received, the ARU checks to see whether a telephone number entered begins with "011." If so, the ARU in Step **69680** performs the ARU Validate International Completion routine of Fig. **69AF**. In Step **69682**, the ARU checks to see whether the domestic terms flag has been set by the subscriber. If not, the ARU in Step **69684** plays a diagnostic message that domestic calls are not available, and proceeds to Step **69671**. In Step **69686**, the ARU checks to see whether a ten-digit number was entered, and in Step **69688** checks to see whether a valid MPA-Nxx number was entered. If number entered was not a ten-digit valid MPA-Nxx number, the ARU in Step **69690** plays a diagnostic message and proceeds to Step **69671**. In Step **69690**, the ARU checks to see whether NADP blocking is effective for this subscriber, and in Step **69692**, the ARU checks to see whether 976 blocking is effective for this subscriber. If either blocking is effective, the ARU in Step **69694** plays a diagnostic message indicating that calls to the addressed number are blocked and proceeds to Step **69671**. Otherwise, the ARU in Step **69696** returns with a status that the number entered is valid.

Fig. **69AF** depicts the ARU Validate International Completion routine. In Step **69700**, the ARU checks to see whether the subscriber is configured to place international calls. If not, the ARU plays a diagnostic message in Step **69702**. In Step **69704**, the ARU checks to see whether the number entered is syntactically valid as an international dialing number. If not, the ARU in Step **69706** plays a diagnostic message. In Step **69708**, the ARU checks to see whether Cset blocking will block the specified number. If so, the ARU in

Step **69710** plays a diagnostic message. If no error conditions were found, the ARU returns a valid status in Step **69712**. If errors were found the ARU in Step **69713** returns an invalid status. If three failed attempts have been made to enter a number, the ARU plays a status message in Step **69714** and transfers the subscriber to the operator in Step **69716**.

Fig. **69AG** depicts the ARU Validate POTS Programming routine, used by the ARU to ensure that only a valid telephone number is stored for use by call routing. In Step **69720** the ARU checks to see whether a valid user entry had been received. If not, the ARU checks to see if this is the third invalid entry attempted. If not, the ARU in Step **69722** returns an indicator that no valid entry was received. If this is the third attempt, in Step **69676** performs the ARU User Xfer to Customer Service routine, which is described above with respect to Fig. **69AI**.

If a valid user entry was received, the ARU checks to see whether a telephone number entered begins with "011." If so, the ARU in Step **69730** performs the ARU Validate International Completion routine of Fig. **69AF**. In Step **69732**, the ARU checks to see whether the domestic terms flag has been set by the subscriber. If not, the ARU in Step **69734** plays a diagnostic message that domestic calls are not available, and proceeds to Step **69721**. In Step **69736**, the ARU checks to see whether a ten-digit number was entered, and in Step **69738** checks to see whether a valid MPA-Nxx number was entered. If neither was entered, the ARU in Step **69740** plays a diagnostic message and proceeds to Step **69721**. In Step **69750**, the ARU checks to see whether 976 blocking is effective for this subscriber. If so, the ARU in Step **69754** plays a diagnostic message indicating that calls to the addressed number are blocked and proceeds to Step **69721**. Otherwise, the ARU in Step **69756** returns with a status that the number entered is valid.

Fig. **69AH** depicts the ARU Validate International Programming routine used by the ARU to assure that only a valid telephone number is stored for use by

call routing. In Step **69760**, the ARU checks to see whether the subscriber is configured to place international calls. If not, the ARU plays a diagnostic message in Step **69762**. In Step **69764**, the ARU checks to see whether the number entered is syntactically valid as an international dialing number. If not, the ARU in Step **69766** plays a diagnostic message. In Step **69768**, the ARU checks to see whether Cset blocking will block the specified number. If so, the ARU in Step **69770** plays a diagnostic message. If no error conditions were found, the ARU returns a valid status in Step **69772**. If errors were found, the ARU in Step **69773** returns an invalid status. If three failed attempts have been made to enter a number, the ARU plays a status message in Step **69774** and transfers the subscriber to the operator in Step **69776**.

Figs. **70A** through **70S** depict automated console call flow charts showing software implementation of the directline MCI product described above and are useful for a further understanding of the invention. A console call flow differs from an ARU call flow in that the console, while automated, is manned by an individual who may act in response to requests made by a caller. This permits a caller without DTMF-enabled equipment to utilize the product. DTMF data provided by the caller will be processed, but the availability of a human operator permits many of the available operations to be performed without the use of DTMF input. Data may be provided by the caller by directly entering it on a keypad, if any, or it may be entered by the human operator in accordance with voice responses provided by the caller.

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Fig. **70A** depicts the starting point for processing of an automated console call into an account. As a call initiates, it is assumed to be a guest call. If the account is not currently online, the automated console in Step **70010** plays a message indicating that calls cannot be accepted for the account. Unless the caller indicates to the operator that he has a passcode, the console in Step **70012** disconnects the call. If the caller provides the operator with a passcode, the operator in Step **70014** initiates the Console

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Validate Passcode routine, which is described below with respect to Fig. **70K**.

5 If the account is currently online, the console checks to see whether the subscriber has indicated an override for incoming calls. If so, the console routes the call to the operator in Step **70018**. If the caller is generating a fax tone, the console in Step **70024** performs the Console Fax Tone Detected routine, described below with respect to Fig. **70S**. If the caller provides the operator with a passcode, the operator in Step **70026** initiates the Console  
10 Validate Passcode routine, which is described below with respect to Fig. **70K**. Otherwise, the call is processed as an incoming call for the subscriber, and the console in Step **70020** performs the Console Find Me routine, which is described below with respect to Fig. **70BC**. The console supplies the “override” parameter to the Console Find Me routine invocation.

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If override has not been specified, the console in Step **70030** presents an audible menu to the caller. In the example shown, item ‘1’ corresponds to a request to speak to a subscriber; item ‘2’ corresponds to a request to leave a voice mail message for a subscriber; item ‘3’ corresponds to a request to  
20 send a fax to a subscriber; and item ‘4’ corresponds to a request to page a subscriber. In addition, a subscriber may provide his or her passcode to gain access to the console as a subscriber.

If the caller requests to speak to a subscriber, the console in Step **70032**  
25 checks the schedule flags associated with the caller’s profile. If the subscriber’s profile indicates a schedule, the console in Step **69034** performs the Console Find Me routine of Figs. **70B** and **70C**, using “Sched1” as the parameter. If the subscriber’s profile does not indicate a schedule, the console in Step **69036** performs the Console Find Me routine using  
30 “First” as the parameter. The Console Find Me routine is discussed in further detail with respect to Figs. **70B** and **70C**, below.

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If the caller requests to leave a voice mail message, the console in Step **70040** performs the Console Xfer to Voice/Fax Guest routine, described below with respect to Fig. **70E**. If the caller requests to send a fax, the console in Step **70042** performs the Console Xfer to Voice/Fax Guest w/ or  
5 w/out Annotation routine, describe below with respect to Fig. **70F**. After performing this routine, the console returns to the guest menu in Step **70030**. If the caller requests to leave a voice mail message, the console in Step **70040** performs the Console Send Page routine, described below with respect to Fig. **70G**. After performing any of the routines of Steps **70040**,  
10 **70042** or **70044**, the console returns to the guest menu in Step **70030**.

If the caller provides a passcode, the console in Step **70046** performs the Console Validate Passcode routine, which is described with respect to Fig. **70K**, below. If the console detects a fax tone on the incoming call, the  
15 console in Step **70048** performs the Console Fax Tone Detected routine, which is described below with respect to Fig. **70S**.

Figs. **70B** and **70C** depict the operation of the Console Find Me routine. As shown in Step **70060**, the Console Find Me routine takes a single parameter  
20 Term\_Slot, which is set by the caller and used by the console to choose among alternative courses of action. If Term\_Slot is set to "Find Me", this indicates that the console is to use the default method of determining the subscriber's current number. This value may be set, for example, for override or default processing. If the subscriber's profile includes schedule  
25 flags, the console performs the Console Find Me routine using the Sched1 parameter as shown in Step **70062**; if not, the console performs the Find Me routine using the first telephone number in the list of numbers for the subscriber, as shown in Step **70061**.

30 If Term\_Slot is set to "Voicemail," the console plays a message to the caller that the subscriber has requested that the caller leave a voice mail message, and in Step **70074** performs the Console Xfer to Voice/Fax Guest Voice

routine, as depicted in Fig. **70E**. That routine returns if unsuccessful, in which case a message is played indicating that the caller should try the call later, and the caller is disconnected in Step **70075**.

- 5 If Term\_Slot is set to "Pager," the console plays a message to the caller that the subscriber has requested that the caller leave a request to page the subscriber. The console then performs the Console Send Page routine, which is described with respect to Fig. **70G**, below. That routine returns if unsuccessful, in which case a message is played indicating that the caller  
10 should try the call later, and the caller is disconnected in Step **70066**.

If Term\_Slot is set to any POTS value (such as Sched1, Sched2, First, Second, or Third) that indicates that the subscriber has specified that incoming calls are to be sent using the standard telephone system, and the  
15 console has been directed to use the particular scheduled or selected telephone number. In Step **70070**, the console performs the Console Record Name routine to acquire a digital recording of the caller's identification. The Console Record Name routine is described in detail with respect to Fig. **70H**, below. The console in Steps **70073** and **70075** plays an appropriate  
20 message for the caller (e.g., "Please hold while I try to reach your party" on the first attempt, and "I am still trying to reach your party; please continue to hold" for subsequent attempts).

If the call is answered by an individual, the console in Step **70072** performs  
25 the Console Connect Call routine, which is discussed below with respect to Fig. **70D**, to connect the caller. If the call is answered by an answering machine, the console in Step **70090** checks to see whether the subscriber has requested that the console roll over to the next alternative number upon encountering an answering machine. If not, the console in Step **70094**  
30 connects the call. If the subscriber has selected rollover, the console selects the next number in rotation to call and re-performs the Console Find Me routine using the newly-selected number, as shown in steps **70081**, **70082**

and **70083**.

If the line called is busy, or if no more numbers to check remain, the console in Step **70074** performs the Console Alternate Routing routine of Fig. **70I**.

5

Fig. **70D** depicts the Console Connect Call routine. If the subscriber has not requested call screening, the console in Step **70100** connects the call to the subscriber. If the subscriber has selected call screening, the console in Step **70104** plays an informational message to the subscriber, identifying the caller by name and by ANI, if available. If the subscriber opts to take the call, the console in Step **70106** takes the caller off hold and in Step **70108** plays a message indicating that the call is being connected, which it performs in Step **70110**. If the subscriber declines to take the call, the console in Step **70114** takes the caller off hold and in Step **70118** plays a recording to the calling party indicating that it was unable to reach the subscriber and optionally prompting the caller to leave a voice mail message. If no mailbox is available, the console in Step **70119** plays a diagnostic message and disconnects the caller in Step **70120**. If a mailbox is available and able to receive messages, the console in Step **70128** performs the Console Xfer to Voice/Fax Guest Voice routine of Fig. **70E**. After this routine has been performed, the console in Step **70119** plays a message asking the caller to call back later, and disconnects in Step **70120**.

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Fig. **70S** depicts the Console Fax Tone Detected routine. In Step **70130**, the console attempts to acquire a handshake with the VFP. If the handshake is successful, the console connects the call in Step **70132**. If unsuccessful, the console disconnects the caller in Step **69132** and exits.

30

Fig. **70E** depicts the Console Xfer to Voice/Fax Guest Voice routine, which connects the caller to the VFP to leave a voice mail message. The console plays a status message in Step **70140** and checks to see whether the subscriber's mailbox is full in Step **70142**. If the mailbox is full, the console

plays a diagnostic message in Step **70144** and returns. If the mailbox is not full, the console attempts to acquire a handshake with the VFP. If the handshake is successful, the console connects the call in Step **70146**. If unsuccessful, the console plays an error message in Step **70148** and  
5 returns.

Fig. **70F** depicts the Console Xfer to Voice/Fax Guest Fax w/ or w/out Annotation routine, which connects the caller to the VFP to transmit a fax. The console plays a status message in Step **70150** and checks to see  
10 whether the subscriber's mailbox is full in Step **70152**. If the mailbox is full, the console plays a diagnostic message in Step **70154** and returns. If the mailbox is not full, the console attempts to acquire a handshake with the VFP. If the handshake is successful, the console connects the call in Step **70156**. If unsuccessful, the console plays an error message in Step  
15 **70148** and returns. The routines of Figs. **70E** and **70F** are similar except for the service requested of the VFP and the contents of the error message played to the caller.

Fig. **70G** depicts the Console Send Page routine, which initiates a call to the  
20 subscriber's paging service. In Step **70160** the console prompts the caller to provide the telephone number that should be provided to the addressed pager. In Step **70162**, the console plays a status recording to the caller, asking him or her to hold while the page is sent. If the page is successfully sent, the console in Step **70164** plays a status message indicating that the  
25 page has been sent and in Step **70165** disconnects the call. If the call to the paging service is unsuccessful, the console in Step **70166** plays a message indicating the failure and returns, enabling the console to present the caller with additional options.

30 Fig. **70H** depicts the Console Record Name routine. This routine is used to record the name of the caller if the subscriber has specified call screening, either by name or by name and ANI. If the subscriber has specified call

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screening by name of by name and ANI, the console in Step **70170** prompts the caller to supply a name, and records the audible response. If a fax tone is detected during the recording process, the console in Step **70172** performs the Console Fax Tone Detected routine; otherwise, the routine  
5 returns.

Fig. **70I** depicts the Console Alternate Routing routine. The console performs this routine to route calls that cannot be routed to the subscriber.

If the subscriber has indicated that such unrouted calls are to be routed to  
10 his or her paging service, the console in Step **70180** plays a recording indicating that the caller may send a page. If the caller elects to send a page, the console in Step **70182** performs the Console Send Page routine that has been described with respect to Fig. **70G**. If the page was unsuccessful, the console in Step **70185** plays a message indicating the  
15 failure and disconnects the caller in Step **70184**. If the subscriber has indicated that unrouted calls are to be routed to voice mail, the console in Step **70183** plays a recorded message indicating that the caller may leave a voice mail message. If the caller elects to leave a voicemail, the console in Step **70186** performs the Console Xfer to Voice/Fax Guest Voice routine  
20 that has been described with respect to Fig. **70E**. If the voicemail was unsuccessful, the console in Step **70185** plays a message indicating the failure and disconnects the caller in Step **70184**.

If the subscriber has indicated a "guest option," the console in Step **69190**  
25 performs the Console Alternate Routing Guest Option routine of Fig. **70J**; otherwise the console plays a diagnostic message in Step **69192** and disconnects the caller in Step **69194**.

Fig. **70J** depicts the Console Alternate Routing Guest Option routine. This  
30 routine permits the guest to select whether to leave a voice mail or send a page if the subscriber is unreachable. The console in Step **70200** presents the caller with a menu of available routing options; here, either to leave a

voice mail or to send a page. If the caller requests to send a voice mail, then the console in Step **70202** performs the Console Xfer to Voice/Fax Guest Voice routine of Fig. **70E**. If that routine returns a return code indicative of an unsuccessful event, then the console plays a prerecorded message  
5 indicating that the voicemail could not be sent, and in Step **70204** prompts the caller to indicate whether he would like to send a page instead. If the caller, in response to either the prompt of Step **70200** or the prompt of Step **70204**, requests to send a page, the console in Step **70206** performs the Console Send Page routine of Fig. **70G**. If the Console Send Page routine  
10 returns (indicating the page could not be sent), or if the caller declines to send a page in response to the prompt of Step **70204**, the console plays a diagnostic message in Step **70208** and disconnects the caller in Step **70209**.

15 Fig. **70K** depicts the Console Validate Passcode Entry routine, which is used by the console to authenticate a passcode provided by a subscriber. In Step **70220**, the caller is prompted for a passcode. In Step **70224**, the console checks to see whether the passcode provided matches the passcode for the specific subscriber. If so, in Step **70226** the console performs the Console User  
20 Call routine, described below with respect to Fig. **70L**. The console allows two attempts to specify a valid passcode. In Step **70228**, the console checks to see whether this is the second failed attempt to provide a passcode. If this is the second attempt, the console in Step **70232** informs the caller that the passcode is not valid, and offers to connect the caller to customer service. If the caller  
25 elects not to be connected to customer service, the caller is disconnected in Step **70234**. If this is the first failed attempt, the console in Step **70230** prompts the subscriber to provide a valid passcode and returns to Step **70224**.

Fig. **70L** depicts the Console User Call routine. In Step **70240**, the console  
30 checks to see whether the subscriber's mailbox is full. If so, in Step **70242**, the console plays a warning message to the subscriber. Regardless of whether the mailbox is full, the console in Step **70244** plays a status

message for the subscriber informing the subscriber of the number of voicemail messages and faxes in the mailbox. On Step **70246**, the console provides a menu of options to the subscriber. In the example shown, option '1' corresponds to a request to send or retrieve mail; '2' corresponds to a request to place a call; and '3' corresponds to a request to exit. If the subscriber selects the option to send or retrieve mail, the console in Step **70248** plays a hold message and then performs the Console Xfer to Voice/Fax Subscriber Send/Retrieve routine of Fig. **70M**. After that routine has completed, the console again returns to Step **70246**. If the subscriber selects an option to place a call, the console performs the Console Outbound Calling routine, which is described below with respect to Fig. **70N**. If the subscriber selects the Exit Programming option, the console disconnects the call.

Fig. **70M** depicts the Console Xfer to Voice/Fax Subscriber Send/Receive routine, which connects the subscriber to the VFP to send and retrieve voice mail messages. The console attempts to acquire a handshake with the VFP. If the handshake is successful, the console connects the call in Step **70250**. If unsuccessful, the console plays an error message in Step **70252** and exits.

Fig. **70N** depicts the Console Outbound Calling routine, by which a subscriber may place an outgoing call. In Step **70260**, the console checks to see whether the subscriber is configured to place international calls. If so, the console in Step **70262** enables the international call key, enabling non-domestic calls to be made. In Step **70264**, the subscriber is prompted for a telephone number. The console connects the subscriber to the outgoing call in Step **70268**.

Fig. **70O** depicts the Console Validate Guest Entry routine. This routine is used by the console to determine whether an attempt by a guest to use the VFP guest facilities is valid. The console in Step **70270** checks to see whether a



guest entry was one of the available choices on the applicable menu. If not, the entry is not accepted, and the console maintains the same menu, as shown in Step **70272**. If guest entry is a proper menu option, the console returns a valid status in Step **70274**.

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Fig. **70P** depicts the Console Validate User Entry routine, which is used by the console to validate an attempt by a subscriber to use subscriber services of the VFP. The console in Step **70280** checks to see whether user entry is one of the available choices on the applicable menu. If not, the entry is not accepted, and the console maintains the same menu, as shown in Step **70282**. If user entry is a proper menu option, the console returns a valid status in Step **70284**.

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Fig. **70Q** depicts the Console Validate Completion routine, used by the console to validate the entry of a valid telephone number. In Step **70292**, the console checks to see whether the domestic terms flag has been set by the subscriber. If not, the console in Step **70294** plays a diagnostic message that domestic calls are not available, and in Step **70310** returns with an indication that the number provided is not valid. In Step **70296**, the console checks to see whether a ten-digit number was provided, and in Step **70298** checks to see whether a valid MPA-Nxx number was provided. If number provided was not a ten-digit valid MPA-Nxx number, was provided, the console in Step **70302** plays a diagnostic message and in Step **70310** returns with an indication that the number provided is not valid. In Step **70304**, the console checks to see whether NADP blocking is effective for this subscriber, and in Step **70306**, checks to see whether 976 blocking is effective for this subscriber. If either form of blocking is effective, the console in Step **70308** plays a diagnostic message indicating that calls to the addressed number are blocked and in Step **70310** returns with an indication that the number provided is not valid. Otherwise, the console in Step **70312** returns with a status that the number provided is valid.

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Fig. **70R** depicts the Console Validate International Completion routine. In

Step **70322**, the console checks to see whether the subscriber is configured to place international calls. If not, the console plays a diagnostic message in Step **70324** and in Step **70340** returns with an indication that the number provided is not valid. In Step **70326**, the console checks to see whether the  
5 number begins with the "011" prefix indicating an international number, and in Step **70327**, the console checks to see whether the number provided is syntactically valid as an international dialing number. If the number does not begin with "011" or is not syntactically valid, the console in Step **70328** plays a diagnostic message and in Step **70340** returns with an indication that  
10 the number provided is not valid.

In Step **70330**, the console checks to see whether Cset blocking will block the specified number. If so, the console in Step **70332** plays a diagnostic message. If no error conditions were found, the console returns a valid  
15 status in Step **70334**.

Implementation of the improved directline MCI product as described above has the following impacts on billing procedures.

directlineMCI domestic Bill Type: 15  
20 directlineMCI international Bill Type: 115

directlineMCI Call Types:

Call Type	Call Description
52	Transfer to Customer Service
138	User Call Completion
139	User Administration Call
140	Guest termination to programmed number
141	Guest termination to voicemail
142	Guest termination to billing number (and defaults, see below)
143	Pager termination
144	Message delivery
145	Guest termination to Fax
146	Guest termination to Inactive Account
147	User termination to voice / fax mail
178	Op Assist User Call Completion
179	Op Assist Guest Termination to programmed number
336	Op Assist Guest Termination to Billing number
337	Op Assist Guest Termination to voicemail
338	Op Assist Guest Termination to Pager
339	Op Assist Guest Termination to Fax
340	Op Assist User Termination to voice/fax platform

- 5 Billing Detail Records and OSR's for billing, and SCAI messaging for reorigination, are populated as follows for the various directlineMCI Call

## Types:

Bill Type 115 is not applicable for BDR's generated by the VFP (Call Types 144); because all these calls are originated at the VFP, they are all be billed as domestically originated, using Bill Type 15.

5

Guest termination to InactiveAccount

Billable Call? N

Bill Type: 15 OR 115

Call Type: 146

Terminating Number:

Blank

Billing Number Account

number\* + 0000

Originating Number

Originating ANI

Termination Method 02

Termination Status

00\*\*

Miscellaneous 1 Account number

Miscellaneous 2

Miscellaneous 3

OSR-Only Flag N

OSR Entry Code 08

SCAI OIR Flag n/a

SCAI BNOA n/a

\* Account number refers to the user's 800/8xx access number

\*\* Termination Status is suggested; other values may be more appropriate

Guest Disconnect - call completion

Billable Call	N
Bill Type:	15 OR 115
Call Type:	140 OR 142
Terminating Number:	Blank
Billing Number	Account number + 0000
Originating Number	Originating ANI
Termination Method	01
Termination Status	262
Miscellaneous 1	Account number
Miscellaneous 2	
Miscellaneous 3	
OSR-Only Flag	N
OSR Entry Code	08
SCAI OIR Flag	n/a
SCAI BNOA	n/a

Guest Disconnect - call completion

(Console)

Billable Call	N
Bill Type:	15 OR 115
Call Type:	179 OR 336
Terminating Number:	Blank
Billing Number	Account number + 0000
Originating Number	Originating ANI
Termination Method	01
Termination Status	262
Miscellaneous 1	Account number
Miscellaneous 2	
Miscellaneous 3	
OSR-Only Flag	N
OSR Entry Code	08
SCAI OIR Flag	n/a
SCAI BNOA	n/a

A Guest Disconnect BDR may have a different Call Type, depending on at what point in the call flow the disconnect came

Guest Disconnect - voicemail completion

Billable Call	N
Bill Type:	15 OR 115
Call Type:	141
Terminating Number:	Blank
Billing Number	Account number + 0000
Originating Number	Originating ANI
Termination Method	01
Termination Status	262
Miscellaneous 1	Account number
Miscellaneous 2	
Miscellaneous 3	
OSR-Only Flag	N
OSR Entry Code	08
SCAI OIR Flag	n/a
SCAI BNOA	n/a

Guest Disconnect - voicemail completion (Console)

Billable Call	N
Bill Type:	15 OR 115
Call Type:	337
Terminating Number:	Blank
Billing Number	Account number + 0000
Originating Number	Originating ANI
Termination Method	01
Termination Status	262
Miscellaneous 1	Account number
Miscellaneous 2	
Miscellaneous 3	
OSR-Only Flag	N
OSR Entry Code	08
SCAI OIR Flag	n/a
SCAI BNOA	n/a

Guest Disconnect - fax completion

Billable Call	N
Bill Type:	15 OR 115
Call Type:	145
Terminating Number:	Blank
Billing Number	Account number
+ 0000	
Originating Number	Originating ANI
Termination Method	01
Termination Status	262
Miscellaneous 1	Account number
Miscellaneous 2	
Miscellaneous 3	
OSR-Only Flag	N
OSR Entry Code	08
SCAI OIR Flag	n/a
SCAI BNOA	n/a

Guest Disconnect - fax completion(Console)

Billable Call	N
Bill Type:	15 OR 115
Call Type:	339
Terminating Number:	Blank
Billing Number	Account number
+ 0000	
Originating Number	Originating ANI
Termination Method	01
Termination Status	262
Miscellaneous 1	Account number
Miscellaneous 2	
Miscellaneous 3	
OSR-Only Flag	N
OSR Entry Code	08
SCAI OIR Flag	n/a
SCAI BNOA	n/a

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Guest Disconnect - pager  
completion

Billable Call	N
Bill Type:	15 OR 115
Call Type:	140 OR 142
Terminating Number:	Blank
Billing Number	Account number + 0000
Originating Number	Originating ANI
Termination Method	01
Termination Status	262
Miscellaneous 1	Account number
Miscellaneous 2	
Miscellaneous 3	
OSR-Only Flag	N
OSR Entry Code	08
SCAI OIR Flag	n/a
SCAI BNOA	n/a

Guest Disconnect - call completion  
(Console)

Billable Call	N
Bill Type:	15 OR 115
Call Type:	179 OR 336
Terminating Number:	Blank
Billing Number	Account number + 0000
Originating Number	Originating ANI
Termination Method	01
Termination Status	262
Miscellaneous 1	Account number
Miscellaneous 2	
Miscellaneous 3	
OSR-Only Flag	N
OSR Entry Code	08
SCAI OIR Flag	n/a
SCAI BNOA	n/a



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Guest termination to Fax - Mailboxfull

Billable Call?	N
Bill Type:	15 OR 115
Call Type:	145
Terminating Number:	Fax
Routing Number	
Billing Number	Account number
+ 0000	
Originating Number	
	Originating ANI
Termination Method	03
Termination Status	257
Miscellaneous 1	Account number
Miscellaneous 2	
Miscellaneous 3	
OSR-Only Flag	N
OSR Entry Code	08
SCAI OIR Flag	N
SCAI BNOA	7C

Guest termination to Fax - Mailboxfull (Console)

Billable Call?	N
Bill Type:	15 OR 115
Call Type:	339
Terminating Number:	Fax
Routing Number	
Billing Number	Account number
+ 0000	
Originating Number	
	Originating ANI
Termination Method	03
Termination Status	257
Miscellaneous 1	Account number
Miscellaneous 2	
Miscellaneous 3	
OSR-Only Flag	N
OSR Entry Code	08
SCAI OIR Flag	N
SCAI BNOA	7C

Guest termination to Fax - Normal

Billable Call? Y - Match/Merge

Bill Type: 15 OR 115

Call Type: 145

Terminating Number: Fax

Routing Number

Billing Number Account number  
+ 0000

Originating Number

Originating ANI

Termination Method 00

Termination Status 257

Miscellaneous 1 Account number

Miscellaneous 2

Miscellaneous 3

OSR-Only Flag N

OSR Entry Code 90

SCAI OIR Flag N

SCAI BNOA 7C

Guest termination to Fax - Normal(Console)

Billable Call? Y - Match/Merge

Bill Type: 15 OR 115

Call Type: 339

Terminating Number: Fax

Routing Number

Billing Number Account number  
+ 0000

Originating Number

Originating ANI

Termination Method 00

Termination Status 257

Miscellaneous 1 Account number

Miscellaneous 2

Miscellaneous 3

OSR-Only Flag N

OSR Entry Code 90

SCAI OIR Flag N

SCAI BNOA 7C

Guest Termination to Voicemail

Billable Call? Y - Match/Merge

Bill Type: 15 OR 115

Call Type: 141

Terminating Number:  
Voicemail

Routing Number

Billing Number Account number  
+ 0000

Originating Number  
Originating ANI

Termination Method 00

Termination Status 257

Miscellaneous 1 Account number

Miscellaneous 2

Miscellaneous 3

OSR-Only Flag N

OSR Entry Code 90

SCAI OIR Flag N

SCAI BNOA 7C

Guest Termination to Voicemail(Console)

Billable Call? Y - Match/Merge

Bill Type: 15 OR 115

Call Type: 337

Terminating Number:  
Voicemail

Routing Number

Billing Number Account number  
+ 0000

Originating Number  
Originating ANI

Termination Method 00

Termination Status 257

Miscellaneous 1 Account number

Miscellaneous 2

Miscellaneous 3

OSR-Only Flag N

OSR Entry Code 90

SCAI OIR Flag N

SCAI BNOA 7C

Guest Term to Closing Message

Billable Call ?      N  
  
 Bill Type:            15 OR 115  
 Call Type:            140 OR 142  
 Terminating Number:  
                          Blank  
 Billing Number      Account number  
 + 0000  
 Originating Number  
                          Originating ANI  
 Termination Method            02  
 Termination Status            00  
 Miscellaneous 1      Account number  
 Miscellaneous 2  
 Miscellaneous 3  
 OSR-Only Flag      N  
  
 OSR Entry Code      08  
  
 SCAI OIR Flag      n/a  
 SCAI BNOA          n/a

Guest Term to Closing Message(Console)

Billable Call ?      N  
  
 Bill Type:            15 OR 115  
 Call Type:            179 OR 336  
 Terminating Number:  
                          Blank  
 Billing Number      Account number  
 + 0000  
 Originating Number  
                          Originating ANI  
 Termination Method            02  
 Termination Status            00  
 Miscellaneous 1      Account number  
 Miscellaneous 2  
 Miscellaneous 3  
 OSR-Only Flag      N  
  
 OSR Entry Code      08  
  
 SCAI OIR Flag      n/a  
 SCAI BNOA          n/a

Guest Term to Closing Message -Voicemail handshake failure

Billable Call ?      N

Bill Type:            15 OR 115

Call Type:            141

Terminating Number:

                         Blank

Billing Number      Account number

+ 0000

Originating Number

                         Originating ANI

Termination Method      02

Termination Status      00

Miscellaneous 1      Account number

Miscellaneous 2

Miscellaneous 3

OSR-Only Flag      N

OSR Entry Code      08

SCAI OIR Flag      n/a

SCAI BNOA      n/a

Guest Term to Closing Message -Voicemail handshake failure(Console)

Billable Call ?      N

Bill Type:            15 OR 115

Call Type:            337

Terminating Number:

                         Blank

Billing Number      Account number

+ 0000

Originating Number

                         Originating ANI

Termination Method      02

Termination Status      00

Miscellaneous 1      Account number

Miscellaneous 2

Miscellaneous 3

OSR-Only Flag      N

OSR Entry Code      08

SCAI OIR Flag      n/a

SCAI BNOA      n/a

Guest Term to Closing Message -Fax handshake failure

Billable Call ?	N
Bill Type:	15 OR 115
Call Type:	145
Terminating Number:	Blank
Billing Number	Account number + 0000
Originating Number	Originating ANI
Termination Method	02
Termination Status	00
Miscellaneous 1	Account number
Miscellaneous 2	
Miscellaneous 3	
OSR-Only Flag	N
OSR Entry Code	08
SCAI OIR Flag	n/a
SCAI BNOA	n/a

Guest Term to Closing Message -Fax handshake failure (Console)

Billable Call ?	N
Bill Type:	15 OR 115
Call Type:	339
Terminating Number:	Blank
Billing Number	Account number + 0000
Originating Number	Originating ANI
Termination Method	02
Termination Status	00
Miscellaneous 1	Account number
Miscellaneous 2	
Miscellaneous 3	
OSR-Only Flag	N
OSR Entry Code	08
SCAI OIR Flag	n/a
SCAI BNOA	n/a

Guest Term to Billing Number

Billable Call?	Y -
Match/Merge	
Bill Type:	15 OR 115
Call Type:	142
Terminating Number:	
	Billing number
Billing Number	Account number
+ 0000	
Originating Number	
	Originating ANI
Termination Method	00
Termination Status	257
Miscellaneous 1	Account number
Miscellaneous 2	
Miscellaneous 3	
OSR-Only Flag	N
OSR Entry Code	90
SCAI OIR Flag	N
SCAI BNOA	7C

Guest Term to Billing Number(Console)

Billable Call?	Y - Match/Merge
Bill Type:	15 OR 115
Call Type:	336
Terminating Number:	
	Billing number
Billing Number	Account number
+ 0000	
Originating Number	
	Originating ANI
Termination Method	00
Termination Status	257
Miscellaneous 1	Account number
Miscellaneous 2	
Miscellaneous 3	
OSR-Only Flag	N
OSR Entry Code	90
SCAI OIR Flag	N
SCAI BNOA	7C

Guest term to ProgrammedNumber

Billable Call? Y -

Match/Merge

Bill Type: 15 OR 115

Call Type: 140

Terminating Number:

Programmed

number

Billing Number Account number  
+ 0000

Originating Number

Originating ANI

Termination Method 00

Termination Status 257

Miscellaneous 1 Account number

Miscellaneous 2

Miscellaneous 3

OSR-Only Flag N

OSR Entry Code 90

SCAI OIR Flag N

SCAI BNOA 7C

Guest term to ProgrammedNumber (Console)

Billable Call? Y -

Match/Merge

Bill Type: 15 OR 115

Call Type: 179

Terminating Number:

Programmed

number

Billing Number Account number  
+ 0000

Originating Number

Originating ANI

Termination Method 00

Termination Status 257

Miscellaneous 1 Account number

Miscellaneous 2

Miscellaneous 3

OSR-Only Flag N

OSR Entry Code 90

SCAI OIR Flag N

SCAI BNOA 7C



Guest Transfer to Operator

Billable Call? N

Bill Type: 15 OR 115

Call Type: 140 OR 142

Terminating Number:

Transfer Routing

Number

Billing Number Account number  
+ 0000

Originating Number

Originating ANI

Termination Method 03

Termination Status 257

Miscellaneous 1 Account number

Miscellaneous 2

Miscellaneous 3

OSR-Only Flag N

OSR Entry Code 08

SCAI OIR Flag N

SCAI BNOA 7C

Guest termination to Pager

Billable Call? Y - BDR Only

Bill Type: 15 OR 115

Call Type: 143

Terminating Number: Pager Routing

Number

Billing Number Account number  
+ 0000

Originating Number

Originating ANI

Termination Method 00

Termination Status 257

Miscellaneous 1 Account number

Miscellaneous 2

Miscellaneous 3 Callback number

OSR-Only Flag N

OSR Entry Code 08

SCAI OIR Flag n/a

SCAI BNOA n/a

Guest termination to Pager(Console)

Billable Call? Y - BDR Only

Bill Type: 15 OR 115

Call Type: 338

Terminating Number: Pager Routing

Number

Billing Number Account number  
+ 0000

Originating Number

Originating ANI

Termination Method 00

Termination Status 257

Miscellaneous 1 Account number

Miscellaneous 2

Miscellaneous 3 Callback  
number

OSR-Only Flag N

OSR Entry Code 08

SCAI OIR Flag n/a

SCAI BNOA n/a

User termination to voicemail -  
message retrieval

Billable Call? Y - Match/Merge

Bill Type: 15 OR 115

Call Type: 147

Terminating Number:

Voicemail

Routing Number

Billing Number Account number  
+ 0000

Originating Number

Originating ANI

Termination Method 00

Termination Status 257

Miscellaneous 1 Account number

Miscellaneous 2

Miscellaneous 3

OSR-Only Flag N

OSR Entry Code 80

SCAI OIR Flag Y

SCAI BNOA 7C

User termination to voicemail -  
message retrieval (Console)

Billable Call? Y - Match/Merge

Bill Type: 15 OR 115

Call Type: 340

Terminating Number:

Voicemail

Routing Number

Billing Number Account number  
+ 0000

Originating Number

Originating ANI

Termination Method 00

Termination Status 257

Miscellaneous 1 Account number

Miscellaneous 2

Miscellaneous 3

OSR-Only Flag N

OSR Entry Code 80

SCAI OIR Flag Y

SCAI BNOA 7C

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User termination to voicemail -  
administration call

Billable Call? N

Bill Type: 15 OR 115

Call Type: 147

Terminating Number:

Voicemail

Routing Number

Billing Number Account number  
+ 0000

Originating Number

Originating ANI

Termination Method 03

Termination Status 257

Miscellaneous 1 Account number

Miscellaneous 2

Miscellaneous 3

OSR-Only Flag N

OSR Entry Code 08

SCAI OIR Flag Y

SCAI BNOA 7C

User Call Completion

Billable Call? Y -

Match/Merge

Bill Type: 15 OR 115

Call Type: 138

Terminating Number:

Customer

Input/Speed Dial ANI

Billing Number Account number  
+ 0000

Originating Number

Originating ANI

Termination Method 00

Termination Status 257

Miscellaneous 1 Account number

Miscellaneous 2

Miscellaneous 3

OSR-Only Flag N

OSR Entry Code 80

SCAI OIR Flag Y

SCAI BNOA 7C

User Call Completion - Console

Billable Call? Y -

Match/Merge

Bill Type: 15 OR 115

Call Type: 178

Terminating Number:

Customer

Input/Speed Dial ANI

Billing Number Account number  
+ 0000

Originating Number

Originating ANI

Termination Method 00

Termination Status 257

Miscellaneous 1 Account number

Miscellaneous 2

Miscellaneous 3

OSR-Only Flag N

OSR Entry Code 80

SCAI OIR Flag Y

SCAI BNOA 7C

Subscriber Administration Call

Billable Call? N

Bill Type: 15 OR 115

Call Type: 139

Terminating Number:

Blank

Billing Number Account number  
+ 0000

Originating Number

Originating ANI

Termination Method 08

Termination Status 257

Miscellaneous 1 Account number

Miscellaneous 2 Programmed  
information

Miscellaneous 3

OSR-Only Flag N

OSR Entry Code 08

SCAI OIR Flag n/a

SCAI BNOA n/a

Subscriber Disconnect -  
programming or no choice at User  
Menu

Billable Call?	N
Bill Type:	15 OR 115
Call Type:	139
Terminating Number:	Blank
Billing Number	Account number + 0000
Originating Number	Originating ANI
Termination Method	01
Termination Status	<u>262</u>
Miscellaneous 1	Account number
Miscellaneous 2	Programmed information
Miscellaneous 3	
OSR-Only Flag	N
OSR Entry Code	08
SCAI OIR Flag	n/a
SCAI BNOA	n/a

Subscriber Disconnect - No choice  
at User Menu (Console)

Billable Call?	N
Bill Type:	15 OR 115
Call Type:	340
Terminating Number:	Blank
Billing Number	Account number + 0000
Originating Number	Originating ANI
Termination Method	01
Termination Status	<u>262</u>
Miscellaneous 1	Account number
Miscellaneous 2	Programmed information
Miscellaneous 3	
OSR-Only Flag	N
OSR Entry Code	08
SCAI OIR Flag	n/a
SCAI BNOA	n/a

Subscriber Disconnect - call completion

Billable Call?	N
Bill Type:	15 OR 115
Call Type:	138
Terminating Number:	Blank
Billing Number	Account number + 0000
Originating Number	Originating ANI
Termination Method	01
Termination Status	<u>262</u>
Miscellaneous 1	Account number
Miscellaneous 2	Programmed information
Miscellaneous 3	
OSR-Only Flag	N
OSR Entry Code	08
SCAI OIR Flag	n/a
SCAI BNOA	n/a

Subscriber Disconnect - call completion (Console)

Billable Call?	N
Bill Type:	15 OR 115
Call Type:	178
Terminating Number:	Blank
Billing Number	Account number + 0000
Originating Number	Originating ANI
Termination Method	01
Termination Status	<u>262</u>
Miscellaneous 1	Account number
Miscellaneous 2	Programmed information
Miscellaneous 3	
OSR-Only Flag	N
OSR Entry Code	08
SCAI OIR Flag	n/a
SCAI BNOA	n/a



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<u>User Transfer to Customer Service</u>	
Billable Call?	N
Bill Type:	70
Call Type:	52
Terminating Number:	
	Transfer Routing
Number	
Billing Number	Account number
+ 0000	
Originating Number	
	Originating ANI
Termination Method	03
Termination Status	257
Miscellaneous 1	Account number
Miscellaneous 2	
Miscellaneous 3	
OSR-Only Flag	N
OSR Entry Code	08
SCAI OIR Flag	N
SCAI BNOA	7C

<u>User Transfer to Operator</u>	
Billable Call?	N
Bill Type:	15 OR 115
Call Type:	138
Terminating Number:	
	Transfer Routing
Number	
Billing Number	Account number
+ 0000	
Originating Number	
	Originating ANI
Termination Method	03
Termination Status	257
Miscellaneous 1	Account number
Miscellaneous 2	
Miscellaneous 3	
OSR-Only Flag	N
OSR Entry Code	08
SCAI OIR Flag	N
SCAI BNOA	7C

The following are the new directlineMCI scripts for the automated response unit (ARU), referencing the corresponding call flow diagram on which they appear:

Call Flow Diagram	IV Number	ARU Script Number	Text
All	733000	1	Press 1.
1			
	733000	2	Press 2.
2			
	733000	3	Press 3.
3			
	733000	4	Press 4.
4			
	733000	5	Press 5.
5			
	733000	6	Press 6.
6			
	733000	7	Press 7.
7			
	733000	8	Press 8.
8			
	733000	9	Press 9.
9			
	733001	10	Press 0.
0			
	733001	11	Press *.
1			
	733001	12	Press #.
2			
1	733010	101	I'm sorry, calls are not being accepted at this time.
1			

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2	733020 1	201	Welcome to directlineMCI!
3	733030 1	301	To speak to your party ...
	733030 2	302	To leave a voicemail message ...
	733030 3	303	To send a fax ...
	733030 4	304	To send a page ...
	733030 6	306	Please hold while I transfer you to voicemail.
	733030 7	307	I'm sorry, your party's mailbox is full
	733030 8	308	Please hold to send a fax.
4	733040 1	401	Your party has requested that you leave a voicemail message.
	733040 3	403	Your party has requested that you send a page.
	733040 4	404	Please hold while I try to reach your party.
	733040 5	405	I am still trying to reach your party. Please continue to hold
	733040 6	406	I am unable to reach your party at this time.
6	733040 8	408	May I please have your name?
	733040 9	409	Please hold while I transfer you to the operator.

7	733070	701	You have a call from ...
	1		
	733070	702	... at ...
	2		
8	733070	703	... an undetermined location.
	3		
	733070	704	... an international location.
	4		
	733080	801	To accept the call ...
	1		
	733080	802	To send your caller to voicemail ...
	2		
	733080	803	To have your caller try again later ...
	3		
	733080	805	Your caller will be asked to leave a voicemail message.
	5		
	733080	806	Your caller will be asked to try again later.
	6		
	733080	807	I'm sorry, your caller has disconnected.
9	7		
	733080	809	Please try your call again later.
	9		
	733090	901	I'm sorry, I am unable to access voicemail at this time.
	1		
	733090	902	I'm sorry, I am unable to access faxmail at this time.
	2		
	733100	1001	Please enter your call-back number, followed by the # sign.
	1		
10	733100	1002	... will be sent
	2		

	733100 3	1003	To re-enter your call-back number ...
	733100 4	1004	To continue ...
	733100 6	1006	No entry was received.
	733100 7	1007	Thank you. Your page has been sent.
	733100 8	1008	I'm sorry, I am unable to complete your page.
	733110 1	1101	I was not able to reach your party.
11	733110 2	1102	Please hold to send a page or try your call again later.
12	733120 7	1207	To send a page, press 1; or, please try your call again later.
13	733130 1	1301	Welcome to User Programming!
	733130 2	1302	Your mailbox is full. Please delete your saved messages.
	733130 3	1303	You have ...
	733130 4	1304	... new voicemail and ...
	733130 5	1305	... new fax messages.
	733130 6	1306	... no ...
	733130 7	1307	To change your call routing ...

	733130 8	1308	To send or retrieve mail ...
	733130 9	1309	To place a call ...
	733131 0	1310	For account maintenance ...
	733131 1	1311	To reach customer service from any menu ...
	733131 3	1313	Please hold to retrieve your voice and fax messages.
	733131 4	1314	For a domestic call, enter the area code and number.
	733131 5	1315	For an international call, enter 0 1 1 and the number.
	733131 6	1316	Please enter the phone or speed-dial number, followed by the # sign.
	733131 7	1317	For operator assistance ...
14	733140 1	1401	I'm sorry, I am unable to access your voice/fax mailbox at this time.
	733140 3	1403	I'm sorry, I am unable to access your distribution lists at this time.
	733140 4	1404	I'm sorry, I am unable to record your mailbox name at this time.
15	733150 1	1501	To change Find-Me routing ...
	733150 2	1502	To change override routing ...
	733150 3	1503	To change final routing ...

	733150 4	1504	To cancel and return to the previous menu ...
	733150 7	1507	Override routing is currently set to ...
	733150 8	1508	... voicemail.
	733150 9	1509	... pager.
	733151 0	1510	... your Find-Me sequence.
	733151 2	1512	Your override routing is currently turned off.
	733151 3	1513	To set override routing to a telephone number ...
	733151 4	1514	To set override routing to voicemail ...
	733151 5	1515	To set override routing to your pager ...
	733151 6	1516	To set override routing to your Find-Me sequence ...
	733151 7	1517	To turn off override routing ...
	733151 9	1519	Your final routing is currently set to ...
	733152 0	1520	... the voicemail or pager option.
	733152 3	1523	... a closing message.
	733152 5	1525	To set finalrouting to the voicemail or pager option ...

	733152 6	1526	To set finalrouting to your voicemail ...
	733152 7	1527	To set finalrouting to your pager ...
	733152 8	1528	To set finalrouting to a closing message ...
16	733160 1	1601	Your Find-Me routing is set to your schedule.
	733160 2	1602	Your Find-Me routing is set to your three-number sequence.
	733160 4	1604	To change to your three-number sequence ...
	733160 6	1606	To save and continue ...
17	733170 1	1701	To change your first number ...
	733170 2	1702	To change your second number ...
	733170 3	1703	To change your third number ...
	733170 4	1704	To review all three numbers ...
	733170 5	1705	To change to schedule routing ...
	733170 8	1708	Your first number is set to ...
	733170 9	1709	Your second number is set to ...
	733171 0	1710	Your third number is set to ...



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	733171 1	1711	Your second number is currently not programmed.
	733171 2	1712	Your third number is currently not programmed.
	733171 3	1713	You do not have a schedule set up at this time. Please contact customer service.
18	733180 1	1801	To create or update your lists.
	733180 2	1802	To record your greeting or mailbox name ...
	733180 3	1803	To activate or deactivate features ...
	733180 6	1806	For broadcast lists ...
	733180 7	1807	For speed-dial numbers ...
	733180 8	1808	Please hold to update broadcast lists.
	733180 9	1809	For your personal greeting ...
	733181 0	1810	For your mailbox name ...
	733181 1	1811	Please hold to record your mailbox name.
	733181 2	1812	Your current greeting is ...
19	733190 1	1901	To change speed-dial number ...
	733191 1	1911	Speed-dial number ...

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	733191 2	1912	... is set to ...
	733191 3	1913	... is currently not programmed.
	733191 4	1914	To record a new greeting ...
	733191 5	1915	To use the system greeting ...
	733191 6	1916	Begin recording after the tone.
	733191 7	1917	To review your greeting ...
	733191 8	1918	To re-record your greeting ...
	733192 1	1921	Your callers will now hear the system greeting.
	733192 2	1922	Your new greeting has been saved.
20	733400 0	4000	To set caller-screening ...
	733400 1	4001	To activate or deactivate your pager ...
	733400 2	4002	To set pager notification ...
	733400 3	4003	To activate or deactivate your account ...
	733400 5	4005	Caller-screening is set to ...
	733400 6	4006	Caller-screening is currently turned off.

7 733400	4007	... number only.
8 733400	4008	... name only. <i>CU</i>
9 733400	4009	... name and number.
0 733401	4010	To set caller-screening to number only ...
1 733401	4011	To set caller-screening to name only ...
2 733401	4012	To set caller-screening to name and number ...
3 733401	4013	To turn off caller-screening ...
5 733401	4015	Your callers will be given the option to page you.
6 733401	4016	Your callers will not be given the option to page you.
7 733401	4017	Your account has been activated.
8 733401	4018	Your account has been deactivated.
9 733401	4019	You are currently being paged for ...
0 733402	4020	... new voicemail messages.
1 733402	4021	... new fax messages.
2 733402	4022	... new voicemail and fax messages.

	733402 3	4023	Pager notification is currently turned off.
	733402 4	4024	To be paged for voicemail messages ...
	733402 5	4025	To be paged for fax messages ...
	733402 6	4026	To be paged for voice and fax messages ...
	733402 7	4027	To turn off pager notification ...
21	733410 1	4101	For a domestic number, enter the area code and number.
	733410 2	4102	For an international number, enter 0 1 1 and the number.
	733410 3	4103	To erase this number ...
	733410 5	4105	To re-enter the number ...
	733410 7	4107	Your override routing will be deactivated.
	733410 8	4108	Your override routing will be changed to ...
	733411 1	4111	Please hold for customer service.
	733411 2	4112	Your final routing will be changed to ...
	733411 6	4116	Your first number will be changed to ...
	733411 7	4117	Your second number will be erased.

	733411 8	4118	Your second number will be changed to ...
	733411 9	4119	Your third number will be erased.
	733412 0	4120	Your third number will be changed to ...
	733412 1	4121	This speed-dial number will be erased.
	733412 2	4122	This speed-dial number will be changed to ...
	733412 3	4123	Your caller-screening will be turned off.
	733412 4	4124	Your caller-screening will be changed to ...
	733412 8	4128	Your pager notification will be turned off.
	733412 9	4129	You will be paged for ...
22	733030 9	309	That option is not available.
23	733010 2	102	That entry is invalid.
	733010 3	103	Please re-enter your passcode.
24	733440 1	4401	I'm sorry, domestic calls are not available.
	733440 3	4403	I'm sorry, calls to that number are blocked.
25	733250 1	2501	I'm sorry, international calls are not available.

26	733260 1	2601	I'm sorry, you may not program a domestic number.
27	733270 1	2701	I'm sorry, you may not program an international number.

The following are the new directlineMCI scripts for the Console Application:

Call Flow Diagram	Console Script Number	Text
1	14160	Welcome to directlineMCI Calls are not currently being accepted on this account { <u>Courtesy Close</u> }
	22008	MCI Operator! How may I help you reach your party?
	22005	MCI Operator! {Press User Prog if caller is account owner}
2	22033	Your party has requested that you leave a voicemail message; please hold {Procedure Call}
	22034	Your party has requested that you send a page {Procedure Call}
	22037	Please try your call again later { <u>Courtesy Close</u> }
3	22031	Please hold while I try to reach your party. {Procedure Call}

	15848	MCI Operator! Please hold while I try to reach your party {Proc Call}
	15844	I am still trying to reach your party; please continue to hold {Proc Call}
	15849	MCI Operator! I am still trying to reach your party; please continue to hold {Proc Call}
	33000	{Press YES if answered, BUSY if busy, NO if no answer after 4-5 rings, <u>ANS MACH for Answer Machine.</u> }
4	22036	This is the MCI Operator. You have a call from NAME and/or ANI; would you like to speak to your caller?
	15845	I'm sorry, I'm unable to reach your party at this time {Proc Call}
	22032	Thank you; your call is connected {Proc Call}
5	7115	Please hold while I transfer you to voicemail {Proc Call}
	22900	I'm sorry, your party's voice mailbox is full {Procedure Call}
	22104	I'm sorry, I'm unable to access voicemail at this time {Procedure Call}
	22340	Please hold to send a fax {Procedure Call}
	22105	I'm sorry, I'm unable to access faxmail at this time {Procedure Call}

6	15865	What callback number would you like to send?
	15866	MCI Operator! What callback number would you like to send?
	22375	Please hold while your page is sent {Procedure Call}
	15863	Your page has been sent. Thank you! {Disconnect}
	15693	I'm sorry; I'm unable to complete your page {Procedure Call}
	22035	What is your name, please?
7	15860	I'm sorry, I'm unable to reach your party at this time; would you like to send a page?
	22040	Would you like to send a page?
	15842	I'm sorry, I'm unable to reach your party at this time; please try your call again later {Courtesy Close}
8	22038	I'm sorry, I'm unable to reach your party at this time; would you like to leave a voicemail message, or send a page?
9	22003	May I please have your passcode?
	22102	Please repeat your passcode
	22017	I'm sorry; that is not a valid passcode {Offer Customer Service or disconnect}
10	22901	Your mailbox is full; please delete your saved messages {Procedure Call}
	22902	You have X new voicemail and Y new fax messages {Procedure Call}
	22400	How may I help you?



	22904	Please hold for your voice and fax messages. {Procedure Call}
11	22905	I'm sorry; I'm unable to access your voice / fax mailbox {Procedure Call}
	22906	What number do you wish to dial? {Enter number or 1-digit Speed Dial number}
	22908	MCI Operator! What number do you wish to dial? {Enter number of 1-digit Speed Dial number}
	22907	Thank you; please hold while your call is connected {Procedure Call}
13	15063	I'm sorry; domestic termination are not available {Procedure Call}
	15053	I'm sorry ; that is not a valid domestic number {Procedure Call}
	15057	I'm sorry; calls to that number are blocked {Procedure Call}
14	15061	I'm sorry; international termination are not available {Procedure Call}
	15051	I'm sorry ; that is not a valid international number {Procedure Call}
	<u>16001</u>	<u>{Press GEN ASST to process a No D-Dial Call}</u>

ARU impacts are described in detail below, as well as in the call flow diagrams.

#### User input

- 5 In general, throughout the call flow, at every opportunity for user/caller input, the possibility of response delay is minimized as much as possible. Following are some examples:

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During 'guest' portion of the call, the subscriber may enter '\*', at which time the NIDS Audio Server (NAS) begins to collect 6 passcode digits, applying an inter-digit timeout.

During playing of the Guest Menu, a single key pressed results in an immediate response, unless the key pressed is the '\*' key, at which point the NAS collects six passcode digits

During playing of any User Menu, a single key pressed results in an immediate response, except in the Outbound Call menu. Because a domestic telephone number, an international telephone number, or a Speed Dial number can be entered here, the system allows the user to press '#', which indicates the end of dialed digits. The '#' is accepted whether it's entered following a single digit entry or a string of digits, i.e. a telephone number.

At any place in the call flow where the user is able to enter a domestic or international number, the '#' key must be accepted to indicate the end of dialed digits. This includes during programming of the First, Second or Third Find-Me numbers, Override Routing to POTS and Speed Dial numbers.

Where possible, the ability for the user to 'power dial' is built into the call flow. This means that, in the event that multiple keys are pressed, scripting is bypassed and the appropriate menu is reached.

One access method is supported for directlineMCI in this embodiment: 800/8xx number access, with no PIN. The PIN field in the database is defaulted to 0000.

#### Billed Number Screening (Fraud) Validation

All directlineMCI calls received are subject to a Billed Number Screening validation, to verify that the number has not been tagged as a Fraud risk.

The lookup is into Category 5, Type 0; the flag checked is the Credit Card (Hot) flag. In the event that the number has been 'shut down', i.e. the Hot

flag is set to 'Y', the application treats the call as an off-line account, but does not allow a subscriber to access programming options.

#### WorldPhone

5 Callers are able to access the directlineMCI platform via WorldPhone. In a preferred embodiment, these calls arrive at the directline platform with a pseudo-ANI in the Originating Number field of the SCAI message. This pseudo-ANI is associated with the specific Feature Group A (FGA) circuit on which the WorldPhone call extension was launched. In another embodiment, the true originating country information is forwarded to the  
10 directline platform; the Originating Number field is populated with the 3-digit Country Code.

In a preferred embodiment, the WorldPhone-originated directline call is billed as follows:

15 Calls originating via WorldPhone, and arriving at the directline platform with a pseudo-ANI as the origination, are billed as domestic, using Bill Type 15. The Originating Number field in the BDR is the FGA pseudo-ANI.

In another embodiment, the call is billed as follows:

20 The ARU and Console implement code to identify whether the Originating Number field contains a pseudo-ANI or true origination information. If the true Country Code origination information is provided, the application refers to its configuration files, where a WorldPhone pseudo-ANI is an optional entry. The existence of this item in the configuration file indicates to the application how the call should be billed.

25 If the application finds a WorldPhone pseudo-ANI in its config file, the call is billed as domestic, using Bill Type 15. The Calling Number in the BDR is set to that WorldPhone pseudo-ANI, and the application instructs the bridging switch to change its Originating Number to that same pseudo-ANI.

If the application does not find the WorldPhone pseudo-ANI in its config file, the call is billed as international, using Bill Type 115, and the Originating

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Number information is retained in the switch record. The BDR is populated with a 10-digit string: '191' + 3-digit Country Code + '0000'.

5 Guest call routing is prescribed by the directlineMCI subscriber in several ways, as described in the following paragraphs:

Blocking checks for guest termination, based on origination, are included below.

#### Call Routing

10 Two options are provided to the user in defining Call Routing: the Find-Me sequence, and the Schedule sequence. With the exception of Schedule definition, the user has the ability to define Call Routing via DTMF.

#### 3-Number Find-Me Sequence

15 If the user has chosen the Find-Me sequence for his Call Routing, the application launches a call to the user's Primary (First) programmed number. If a live answer is received, the guest caller is connected with the answering party. Call screening, described below, may be active, in which case the answering party must actively accept the call before it is connected.

20 If the line at the First number is busy, the call is routed to the user's programmed Alternate Routing, described below. If no answer is detected after a configurable time, the application launches a call to the user's Secondary (Second) programmed number.

25 Answer treatment at the Second number is the same as for a call attempt to the First number with no answer resulting in a call attempt to the user's Tertiary (Third) number. Answer treatment at the Third number is the same, with no answer resulting in Alternate Routing.

If, at any point in this calling sequence, a termination slot is not programmed, the application skips that number in the sequence, and proceed to the next number, or Alternate Routing.

For any programmed international termination, the application looks up the terminating country code in the Country Code tables. If the Direct Dial Country flag is set to 'Y' for that country, the ARU transfers the call to the manual console (TTC = 1e) for processing.

## 5 2-Level Schedule Sequence

If the user has chosen the Schedule sequence for his Call Routing, the application takes the Schedule 1 Trans and Schedule 2 Trans fields to use as keys into the 800 Translation database to retrieve schedule information. From the user's two schedule translations, and using the current day and time, the First and Second Schedule numbers are determined.

10 A call is launched to the First Schedule number, and answer treatment is as described in the Find-Me sequence, with no answer resulting in a call attempt to the Second Schedule number. Answer treatment at the Second Schedule number is the same, with no answer resulting in Alternate  
15 Routing.

Again, if at any point in the Schedule calling sequence, a terminating number cannot be found, the application skips that slot in the sequence, and proceeds to the next number, or Alternate Routing.

The user's schedule is set up during Order Entry, and is not user-updatable  
20 via DTMF. At Order Entry, the user is asked to define his schedule by Date, Day of Week, Time of Day (in 30 minute increments), and by Time Zone.

## Override Routing

The option is available, via DTMF, for the user to disable the presentation of the Guest Menu by prescribing specific routing for all guest callers. Via  
25 Override Routing, the user is able to: route callers to a single telephone number, have callers leave a voicemail message, have callers page him, or route callers through his programmed Call Routing (Find-Me or Schedule).

If the user has programmed Override Routing to route to a telephone number, no answer at that number results in Alternate Routing treatment.

## 30 Alternate Routing

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Alternate Routing allows the user to define, via DTMF, the treatment of a caller for whom an attempt to reach the subscriber has been made, but no answer was received. Alternate Routing options include Voicemail, Pager, Closing Message, or the Guest Option of Voicemail or Pager. The default for  
5 Alternate Routing, if not programmed, is the playing of the Closing Message.

#### Default Routing

The user is able to prescribe at Order Entry the treatment for a caller who, when presented the Guest Menu, does not respond after two attempts. The Default Routing options are: a transfer to the Operator (TTC = 67), where  
10 the Guest menu is presented again, a telephone number, with no answer resulting in Alternate Routing, Voicemail, or Call Routing (Find-Me or Schedule). The default for Default Routing, if it's not programmed, is the Operator transfer.

#### Call Screening

15 The user may choose to have Call Screening invoked, to announce all guest callers. Call Screening options include pre-programming of Name Only, ANI Only, Name and ANI, and No Call Screening. The user has the ability to program Call Screening via DTMF.

20 When Name Only or Name and ANI screening is programmed, the caller's name is recorded. If the caller does not respond to the prompt, and nothing is recorded, the system will default to ANI Only screening. When an answer is received at a terminating telephone number, the caller's Name and/or ANI is played and the answering party is asked to accept or reject the call. If the  
25 call is accepted, the caller is connected. If Caller Screening includes ANI screening, and the originating number is a Country Code, the scripts '... an international location' will be played in place of the ANI.

If the call is rejected, or no response is received from the answering party, the caller is asked to leave a voicemail message, or the Closing Message is  
30 played, if the user has not subscribed to Voicemail.

### Timeout Parameters

Timeout values are defined, in seconds, in the directlineMCI database for the following termination:

For this termination:	Use this timeout value:
First Find-Me	Primary Timeout
Second Find-Me	Secondary Timeout
Third Find-Me	Tertiary Timeout
Schedule 1	Primary Timeout
Schedule 2	Secondary Timeout
Override Routing, if telephone number	Override Timeout
Default Routing, if telephone number	Default Timeout

- 5 These timeout values are defaulted to 25 (seconds), but the user is allowed to change them via Customer Service.

### Call Connection times

Call connection delays, when a guest call to a programmed termination is completed, are minimized as much as possible.

- 10 Answer detection

For all call attempts to a telephone number, treatment on detection of an answering machine is defined by the Roll on Machine Detect flag (State flag, bit 9). If this flag is set to 'N', the caller is connected to the answering

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machine . If the flag is set to 'Y', the application routes to the next number in the calling sequence or Alternate Routing.

5 Current answer detection performance on the ISN is as follows: The NAS correctly detects a live answer at 99% reliability; a machine is correctly detected at 67% reliability.

10 For any Answer Detection responses not addressed specifically in this requirement, Fast-Busy for example, treatment is as described for a No Answer condition.

#### Programmed Number Validation

15 The user has the ability to program a telephone number in his First, Second, and Third Find-Me numbers, and Override Routing. Before a number is accepted for programming, the application makes the following validation checks:

#### Domestic numbers

The Domestic Terms flag (PIN bit 1) is examined to ensure that the user is authorized to program a domestic number

20 The International Blocking database is queried, using Category 000, Type 002, and the programmed NPA, looking for a pattern match, to ensure that the programmed number is not a blocked Information/Adult Services number.

25 The Exchange Master is examined to determine whether the termination is an NADP number. If so, Country Set blocking is applied. The Pseudo-Country Code (PCC) associated with the programmed number is validated against the Country Set found in the directlineMCI Property Record. If that PCC is blocked, programming to that number is not allowed.

International numbers.

30



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The International Terms flag (PIN bit 2) is examined to ensure that the user is authorized to program a international number.

5 The Country Set from the directlineMCI Property Record is retrieved, and the application verifies that the programmed Country Code is not blocked for that Country Set.

Blocking checks for programming guest termination are included below.

10 The Call Flow diagram depicts the various situations for which a transfer to the Voice/Fax Platform (VFP) is necessary. A transfer is implemented using the routing number in the Voicemail Route Number field of the customer record.

15 In order to 'mask' some of the delay in call extension to the VFP, the call is extended *before* the 'please hold' script is played to the caller. Call extension delay is reduced additionally by removing inter-digit timeouts, as described previously. After launching a call and playing the script, the application awaits answer detection, at which time the user's directlineMCI access number (800/8xx number) is out-pulsed to the VFP, followed by a '\*',  
20 then a single mode digit, which indicates to the VFP the type of transfer to process, followed by a '#'. The mode indicator is one of the values, described in the table that follows. To ensure that the information has been received and validated by the VFP, the application awaits the playing of two DTMF '00' tones from the VFP, then the caller is connected.

25

Mode indicator	Transfer type
1	Guest voicemail

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2	Guest fax with voice annotation
3	Guest fax without annotation
4	User voice/fax retrieval
5	User list maintenance
6	User recording of mailbox name

---

A VFP transfer attempt is considered failed if two handshake attempts have failed. If a Guest transfer to voice or faxmail fails during Override, Default, or Alternate Routing, the guest caller is asked to try his call again later. If a

5 Guest transfer fails on a Guest Menu choice, the menu will be presented again. If a user transfer to voice or faxmail fails, a script will be played, informing the user of the failure, and the user is returned to the previous menu.

10 A guest fax transfer without annotation occurs when, at the outset of the call, fax tone is detected. Fax tone detection is independent of the presentation of the welcome message, so the length of the greeting has no effects on the reliable detection of fax tones.

15 When a user accesses User Programming, the application presents the count of new voicemail messages, new fax messages, and a full mailbox message, if applicable. The application queries this information from the VFP via the VFP\_Trans Service.

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The user also has the ability to define, via DTMF, whether he would like a pager notification of new voice and fax messages. Pager notification options are: Voicemail notification, Fax notification, notification of both Voicemail and Fax, and No notification. Pager notification settings are stored in the

5 Page on Vmail flag (PIN bit 15) and Page on Fax flag (PIN bit 16).

### **Paging**

The option to page the subscriber is one of the choices presented at the

10 guest menu. In addition, the guest may be asked to send a page, according to the user's programmed Override or Alternate Routing.

In sending a page, the application requests the callback number from the caller. The user's customer record contains the following information used

15 in processing the page: the Pager Access Number, used in launching the call to the pager company, the user's Pager PIN, and the Pager Type, which points to a configurable dial string for communicating the page information.

The dial string provides the timeout value for waiting for answer detection, the delay following answer detection, the number of PIN digits to DTMF, and

20 any termination characters needed, for example '#'.

If a caller disconnects after entering a callback number, the page is completed and billed.

Pager types supported are as follows:

25

<i>Page</i>	<i>Pager</i>	<i>Pager dial string</i>	<i>Pager Access</i>
<i>r</i>	<i>Company</i>		<i>Number</i>
<i>Type</i>			

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1	SkyTel/MTel	A180T32R7D#E	6019609560
		D#	
2	AirTouch	A180T32R7D#E	6019609560
		D#	
3	Mobile Media	A180T32R7D#E	6019609560
		D#	
4	AirSignal/Mc	A180T32R7D#E	6019609560
	Caw	D#	
5	American	A180T32R7D#E	6019609560
	Paging	D#	
6	Mobile	A180T136R6T1	8009464646*
	Comm	8ET32	
7	MCI Page	A180T136R7T1	8006247243*
		8ET32	
8	MCI Word	A180T136R7T1	8006247243*
		8ET32	

\* 800-access numbers will be routed via the DAP-looparound at the bridging switches.

The user has the ability to enable/disable the presentation of pager as a  
 5 guest menu option. When pager is disabled, it is not presented at the Guest  
 Menu, nor is it presented to the user in programming Override or Alternate  
 Routing. The Guest Option of Voicemail or Pager also is removed from  
 Alternate Routing programming choices. If Override Routing is set to Pager,  
 and pager has been turned off, the call is handled as if Override were not  
 10 populated. If Alternate Routing is set to Pager, and pager has been turned  
 off, the caller is routed to voicemail, if he has it, or the closing message is  
 presented. These are the default treatments for Override and Alternate  
 Routing. The Pager On/Off flag (State bit 13) is where the pager's  
 enabled/disabled status is stored.

In addition to the pager enable/disable ability, the user can define pager notification options, as described in the Voicemail/Faxmail section of this description. The VFP performs pages for notification of new voice and fax messages, and supports those pager types supported by the ISN. The status  
5 Pager On/Off flag has no impact on pager notification; the user is required to set Pager Notification to No Notification, in order to receive no notification of new messages.

### **Outbound Dialing**

10 The user has the ability to make a call, billing the call to his directlineMCI account. This option is presented at the Main User Programming menu. Outbound calling options include: Domestic termination, dependent on the Domestic Completion flag (State bit 4), International termination, dependent on the International Compilations flag (State bit 5), and programmed Speed  
15 Dial termination, dependent on the Speed Dial Completion flag (State bit 6).

For any requested international completion, the application looks up the terminating country code in the Country Code tables. If the Direct Dial Country flag is set to 'Y' for that country, the ARU transfers the call to the  
20 manual console (TTC =9d) for processing.

The following validation checks are made before a call is completed for a subscriber:

25

Domestic numbers

The Domestic Compilations flag must be set to 'Y'

The International Blocking database is queried, using Category 000, Type 002, and the programmed NPA, looking for a pattern match, to ensure that

the programmed number is not a blocked Information/Adult Services number.

5 The Exchange Master is examined to determine whether the termination is an NANP number. If so, Country Set blocking is applied using the Country Set found in the directline AuthCode Property record. In the case of a subscriber calling in from an international location, the Country Sets from both the Property Record of the originating country and from the directlineMCI Property Record are retrieved, and the application verifies that  
10 the PCC is not blocked for either Country Set. The Property Record for an originating country is looked up using '191'+3-digit Country Code+'0000' as key into the Property Record database.

#### International numbers

15 The International Compilations flag must be set to 'Y'  
The Country Set from the directlineMCI Property Record is retrieved, and the application verifies that the destination Country Code is not blocked for that Country Set. In the case of an international origination, the Country Sets from both the Property Record of the originating country and from the  
20 directlineMCI Property Record are retrieved, and the application verifies that the destination Country Code is not blocked for either Country Set.

Blocking checks for user call compilations, based on origination, and for programming Speed Dial numbers, are included below.

25

#### **Reorigination**

A caller may reoriginate from a call completion, either to the VFP or a telephone number, by pressing the # key for 2 seconds. The switch verifies that reorigination is permitted for that call, and if so, it delivers the caller  
30 back to the ISN.

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The status of a reoriginating caller is derived from the value in the Val Stat field of the BDR of the original call. The following table defines possible values for that field and what each value indicates:

Val Stat Value	Caller Type	Disposition of Original Call	Reoriginatable?
200	Subscriber	Call Completion	Y
201	Subscriber	Voice Mail	Y
202	Subscriber	Fax *	n/a
100	Guest	Off-Line	N
101	Guest	Primary	N
102	Guest	Secondary	N
103	Guest	Tertiary	N
104	Guest	Override	N
105	Guest	Closing Message	N
112	Guest	Voice Mail	N
113	Guest	Pager	N
114	Guest	Fax	N

\* Unused - Currently there is no differentiation between subscriber access to voice mail and subscriber access to fax mail; it will be indicated with a Val Stat of 201

5

Additionally, # Reorigination is made available to the subscriber from completion to the voice mail/fax mail platform. This is done with two changes to the data populated in the switch record (OSR), as indicated in the Billing section.

### Subscriber reorigination

A subscriber reorigination is identified as such via the Val Stat field of the original call, and the User Programming menu is presented. A subscriber who has completed to the voice/faxmail platform or to a telephone number is allowed to reoriginate.

### **Console Impact**

Console impacts are described in detail in the following sections, as well as in the call flow diagrams.

### ARU Transfers

- 10 The Console receives transfers from the ARU for the following reasons. Treatment for these transfers is indicated in the Console call flow diagrams.

<i>TTC</i>	<i>Transfer Reason</i>	<i>Text</i>
1e	Guest call completion requiring Operator assistance	'Guest call requires Operator assistance'
64	Third non-entry at pager callback number prompt	'Pager callback number not entered properly'
67	Request or timeout at Guest Menu	'Requested transfer or time-out at Main menu'
9d	Subscriber call completion requiring Operator assistance	'Subscriber call requires Operator assistance'

### **Access Method**

Refer to the Access Method section in ARU Impacts.

### 15 **Direct Calling**

Refer to the Direct Calling section in ARU Impacts., with the following exception:

Default Routing



Default Routing does not have an impact on the Console, except when it's been programmed or defaulted to Operator Transfer. In this case, the call will be handled as a new call, with the Guest Menu presented.

### **Voicemail / Faxmail**

- 5 Refer to the Voicemail/Faxmail section in ARU Impacts.

### **Paging**

Refer to the Paging section in ARU Impacts.

### **Outbound Dialing**

Refer to the Outbound Dialing section in ARU Impacts.

### 10 **Reorigination**

Refer to the Reorigination section in ARU Impacts.

### **Flag Dependencies**

Flag dependencies are shown in the following table:

15

<b>Diagram</b>	<b>Menu</b>	<b>Menu Item</b>	<b>Dependencies</b>
3	Guest Menu	Leave a voicemail message	VMail Flag
		Send a fax	Fax Termination Flag
		Send a page	Pager Termination Flag AND Pager On/Off Flag
		(Passcode)	Program (Follow-Me) Flag

13	User Main Menu	Change Call Routing	Find-Me Flag AND (Domestic TerminationsFlag OR International Termination Flag OR Vmail Flag OR Pager Termination Flag)
		Send / Retrieve Mail	VMail Flag OR Fax Termination Flag
		Place a Call	Domestic Completion Flag OR International Completion Flag OR Speed Dial Completion Flag
		Administration	Vmail Flag OR Fax Termination Flag OR Speed Dial Programming Flag OR Greeting Recording OR Call Screening Programming Flag OR Pager Termination Flag OR Avail Programming Flag
	Place a Call	Speed Dial Number	Speed Dial Compilations Flag
		Domestic Number	Domestic Compilations Flag
		International Number	International Compilations Flag
15	Change Routing	Find-Me Routing	Domestic TerminationsFlag OR International Termination Flag

		Override Routing	Domestic TerminationsFlag OR International Termination Flag OR Vmail Flag OR Pager Termination Flag
		Alternate Routing	Vmail Flag OR Pager Termination Flag
	Override Routing	POTS	Domestic Termination is Flag OR International Termination Flag
		Voicemail	Vmail Flag
		Pager	Pager Termination Flag
		Find-Me	Domestic TerminationsFlag OR International Termination Flag
	Alternate Routing	Guest Option	Vmail Flag AND Pager Termination Flag
		Voicemail	Vmail Flag
		Pager	Pager Termination Flag
17	Change 3- Number Sequence	First Number	Domestic TerminationsFlag OR International Termination Flag
		Second Number	Domestic TerminationsFlag OR International Termination Flag
		Third Number	Domestic TerminationsFlag OR International Termination Flag
		Change to Schedule Routing	Schedule 1 Flag AND Schedule 2 Flag

18	Administration	List Maintenance	VMail Flag OR Fax Termination Flag OR Speed Dial Programming Flag	
		Record Greetings	Greeting Recording Flag OR Vmail Flag OR Fax Termination Flag	
		Activate / Deactivate Features	Call Screening Programming Flag OR Pager Termination Flag OR VMail Flag OR Fax Termination Flag OR Avail Programming Flag	
	Lists	Broadcast Lists	VMail Flag OR Fax Termination Flag	
		Speed Dial Lists	Speed Dial Programming Flag	
	Greetings	Welcome	Greeting Recording Flag	
		Mailbox Name	VMail Flag OR Fax Termination Flag	
	20	Feature Activation	Call Screening	Call Screening Programming Flag
			Activate / Deactivate Pager	Pager Termination Flag
Pager Notification Options			Pager Termination Flag AND (VMail Flag OR Fax Termination Flag)	
Activate / Deactivate Account			Available Programming Flag	
Pager Notification		Voicemail Only	VMail Flag	
		Fax Only	Fax Termination Flag	

		Voicemail and Fax	VMail Flag AND Fax Termination Flag
21	Program	Domestic number	Domestic Flag
		International number	International Flag

**Blocking Checks**

This description does not include flags checks; it discusses Country Set, 'Adult Services' (976), and Inter-NANP Blocking. Where needed, a default  
 5 ANI Property record is used for Country Set Blocking.

Σ 976 blocking is implemented as follows:

The International Blocking database is queried, using Category 000, Type 002, , and the programmed NPA, looking for a pattern match, to ensure  
 10 that the programmed number is not a blocked Information/Adult Services number. If a match is found, the call/programming is not allowed.

Σ Inter-NANP blocking is implemented as follows:

The Exchange Master is examined to determine whether the termination is an NANP number. If so, the Intra-NANP flag is checked to see  
 15 if it's set to 'Y'. If it is, the Intra-Country flag for the originating number is checked. If the Intra-Country flag for the originating number is also set to 'Y', the call is blocked. If not, the call is allowed. In short, if the Intra-Country flags of both the originating and terminating numbers are 'Y', the call is blocked; if either one is set to 'N', the call is allowed.

20 Σ Country Set blocking is implemented as follows:

The Country Set(s) of the directlineMCI Property record, and possibly the originating ANI/country, as indicated below, are validated against the Country Code of the termination. If the terminating country is blocked in any of the Country Sets, the call is blocked.

25 Guest Call Completion

Termination	
G	

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OriginationB	Domestic	NANP	International
Domestic	Inter-NANP (Allow)	Inter-NANP (Allow) Cset Blocking using Term PCC, Orig ANI & Auth Csets	Cset Blocking using Term CC, Orig ANI* & Auth Csets
NANP	Inter-NANP (Allow)	Inter-NANP (Block)	Cset Blocking using Term CC, Orig ANI & Auth Csets
International	Allow	Cset Blocking using Term PCC, Orig CC and Auth Csets	Cset Blocking using Term CC, Orig CC and Auth Csets

## User Call Completion

Termination G			
OriginationB	Domestic	NANP	International
Domestic	Domestic Comp Flag Inter-NANP (Allow) 976 Blocking	Domestic Comp Flag Inter-NANP (Allow) 976 Blocking Cset Blocking using Term PCC, Orig ANI & Auth Csets	International Comp Flag Cset Blocking using Term CC, Orig ANI & Auth Csets
NANP	Domestic Comp Flag Inter-NANP (Allow) 976 Blocking	Domestic Comp Flag Inter-NANP (Block) 976 Blocking	International Comp Flag Cset Blocking using Term CC, Orig ANI & Auth Csets

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International	Domestic Comp Flag 976 Blocking	Domestic Comp Flag 976 Blocking Cset Blocking using Term PCC, Orig CC and Auth Csets	International Comp Flag Cset Blocking using Term CC, Orig CC and Auth Csets
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## Programming Routing

Termination G			
OriginationB	Domestic	NANP	International
N/A	Domestic Flag 976 Blocking	Domestic Flag 976 Blocking Cset Blocking using Term PCC, Auth Cset	International Flag Cset Blocking using Term CC, Auth Cset

## Programming Speed Dial Numbers

Termination G			
OriginationB	Domestic	NANP	International
N/A	Domestic Comp Flag 976 Blocking	Domestic Comp Flag 976 Blocking Cset Blocking using Term PCC, Auth Cset	International Comp Flag Cset Blocking using Term CC, Auth Cset

5

**XIX. INTERNET FAX****A. Introduction**

A large percentage of calls on the PSTN are Fax calls. These calls send digital information encoded and modulated for analog transmission to the phone company's central office (CO). At the CO the analogue signal is digitized for continuous transmission across the PSTN at 64 Kbps. At the

10

destination CO the digital signal is converted to analogue for transmission to the recipient Fax machine. Continuous transmission of international Fax traffic results in high utilization of scarce transmission capacity and incurs the high cost of international direct dial phone service.

5

### **B. Details**

Currently, there is an increased interest in sending fax and voice over the Internet. In the past, facsimiles tended to be on the periphery of the network and did not utilize the intelligence inherent in the Internet. A preferred embodiment transparently routes faxes over the internet rather than tying up the telephone network. A network subsidized with appropriate logic can sense a fax call by sensing tones on the line. Then, the call can be directed to another piece of hardware or software that would then perform a fax over the Internet. The network performs routing by utilizing the destination fax machines phone number as an address. Then, by accessing the DAP, the appropriate gateway can be selected to route the call to the appropriate destination based on the phone number. This is accomplished by sending a routing request to the DAP. The DAP selects the destination gateway by one of several methods. One method may be by point of origin. That is, by table lookup a particular point of origin is assigned a particular destination gateway. Another method could be by a load balancing technique. The network logic can transparently detect normal telephone network activities and transmit them over the internet without affecting their integrity. One embodiment employs a double dialing scenario similar to the current telephone credit card. The first number is utilized to designate how the call was to be routed, while the second telephone number is used to route the call to the destination address like any other telephone call once the appropriate gateway was identified.

30 The detailed logic associated with the alternative routing of faxes on the Internet is accomplished by monitoring calls on trunk groups. Typically, a



company or other organization will purchase capacity on a trunk line that can be utilized exclusively to service the requirements of the organization. The trunk group of a preferred embodiment is modified with appropriate sensing hardware which can be a hybrid network, such as, or including a Digital Signal Processor (DSP) to divert faxes destined for predetermined carriers over a data network such as an internet or an X.25 network instead of the public switched network. The monitoring of the calls coming into a specific trunk group is performed transparently.

The trunk group comes into a bridging switch which diverts calls to an intelligent network. The intelligent network detects if the call is being directed to a particular country or city that is targeted for special routing treatment over the internet or another data network instead of the PSTN. If the call is not targeted for one of the country or city codes of interest the call is routed normally across the PSTN to its destination.

Dropping down one more level of detail, when the call comes into an MCI switch, the switch launches a DAP query requesting a route for the call. The DAP analyzes the call based on the number dialed and other profile information, and routes the call to a fax tone detection system. The fax tone detection system listens for fax CNG tone and if it detects a CHG tone, then a second phone call is placed to a fax internet gateway. When the fax internet gateway answers, the first and second call are bridged together at a bridging switch.

25

The required modification is to screen incoming calls by destination. For predetermined target destinations, the intelligent network holds the call for additional processing. This is accomplished according to a preferred embodiment illustrated in Figure **52B**. In that figure, an originating user's fax machine F1, is connected via switch **5260** to the phone line. Switch **5260** connects the call via switch **5261** and places a routing request to the DAP **5262** for routing data query purposes. The DAP is connected to a routing

30

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database such as a Long Term Regulatory Routing Database. The trunk is also connected to appropriate logic, only the Fax Tone Detector (FTD) is shown, at **5263**. That logic includes logic to route fax calls destined for predetermined countries to a fax gateway **5264** via switches **5261** and **5265** to an alternate data network **5266** to a fax gateway **5267** in the predetermined country. For countries other than the predetermined country, the switch **5261** will send the call by way of the PSTN.

Operation of the above embodiment of Figure **52B** is seen with respect to the flow chart of Figure **52C**. At step **5270** of the flow chart, the originating switch **5261** of Figure **52B** receives the call. The call can be from a telephone, a PC, a fax machine F1, or other suitable device. Using the destination information associated with the call, the DAP is queried via Switch **5261** at step **5271**. The DAP looks up the routing information and a decision is made at step **5273** whether the destination is one of the predetermined countries, cities, or other locations of interest. If not, the call is handled through normal routing as in step **5274**.

If the call is for a predetermined destination of interest it is routed to the FTP as in step **5275**. The FTP then determines whether this call is a fax call at step **5276**. This may be done by attempting to detect a CNG tone by well known means. In one method of accomplishing this a timer can be used. If a CNG tone is not detected within a specified time period the call is assumed not to be a fax call. It is then released and bridged through normal routing over the PSTN as at step **5277**. If a CNG tone is detected, the call is released and bridged to fax gateway **5264** as at step **5278**, the call is collected and the fax is transmitted over the alternate data network **5266** over which it is sent to fax gateway **5267** and then on to fax machine F2 at the destination point.

This may have further routing via a domain name that may have several countries. The Domain Name Server will distribute calls amongst several destinations via a lookup table. A gateway will be located in a destination

country and a TCP/IP session is set up with the gateway for control purposes. The data may be passed TCP or UDP based on the particular network characteristics. In any case, the dialed digits are passed to the origin gateway which forwards the digits to the destination gateway where  
5 the phone number is dialed.

The destination gateway then dials the destination number and engages a fax machine at the other end. The system utilizes two pairs of fax modems to convert a telephony signal to packets and back. Fax modems like any  
10 other modems negotiate for baud rate, but they do it each time a page is transmitted. Each side specifies its capabilities and they negotiate what speed they can support. First, start the transfer of fax information, then an ACK is transmitted after each page and finally the baud rate is renegotiated at 300 baud (LCD). Finally, the messages are received at the distant  
15 modem and the packet is repackaged as a fax package. At the end of every page, there is a renegotiating of baud rate based on error rate, and, if there are too many errors, the faxes will renegotiate to a lower speed before resending and/or retransmitting the page.

20 In accordance with a preferred embodiment, the system detects that the destination telephone circuit has been connected before transmitting fax information. The overhead associated with this processing requires the following detriments to normal fax processing.

- 1) Increased postdial delay; and
- 25 2) Actual transmission of the fax may take five percent longer.

## **XX. INTERNET SWITCH TECHNOLOGY**

### **A. *An Embodiment***

The problem with current switched networks is that when you have a LEC connected via legislated feature group D trunks, providing inexpensive  
30 access is difficult because access charges are dictated by the LEC.

Therefore, if the Internet access is provided via a service which utilizes feature group D trunks, the cost passed on to the consumer is exorbitant. If the feature group D trunks are bypassed, and a dedicated network is provided, ie., the LEC is connected directly to a modem pool which provides access to the Internet, a second tier of problems arises. These problems include: scalability, survivability and inefficiency of design. Further, a modem would be necessary for each DS0 purchased from the LEC. All of these problems are solved by the architecture discussed below.

Scalability is addressed by the CBLs described in Figure 1C because the modem pool can be adjusted to meet the network traffic requirements. The CBLs can be adjusted to meet the requirements of the particular community of interest. In a dedicated network, a one-to-one relationship exists between CBLs and entries in a modem pool. Then, if a modem fails, the ability to service users is directly affected by the ability to utilize modems. By eliminating the direct correlation between the modem pools and the CBLs, the DAP can map calls to dynamic resources obtained through the network wherever they reside. This design is more efficient than any current architecture. A detailed discussion of this architecture ensues below.

The third problem which was overcome by a preferred embodiment was a direct result of solving the previous two problems. A method for routing a call in the network was required when only an origination indication is provided by a LEC. An embodiment incorporating the functionality of a hotline provides a solution to this problem. When an origination is detected on an incoming trunk (circuit) for which the hotline functionality is enabled, a database lookup is performed as an internal process of a switch's routing database. This database lookup results in a preliminary dialing plan (i.e. a 7 or 10 digit number) that will be used to determine the destination of the call. The hotline function resides in the switch, but it was not integrated into routing capability which exploited the DAP and allowed a switch to formulate a DAL procedure request without any calling information (ADF

transaction) to the DAP. The request is transmitted over an X.25 protocol link, a local area network, an Optical Connection Three (OC3) ATM network, a frame relay, SMDS or other communication link to the DAP for processing. The DAP performs additional database lookups to determine the appropriate destination (in this case, it would be the SWitch ID (SWID) and Terminating Trunk Group (TTG) that corresponds with the trunk connection to the Modem Pool). The hotline is a foundation in the design that overcame the problems described above.

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Figure **71** depicts a typical customer configuration of a hybrid network for carrying private network services, such as VNET, Vision or other media while providing local dial access, private dialing plans over shared or dedicated access. The combination of the FDDI LAN **10201**, the transaction

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servers **10205**, and the communication servers **10215** and **10225** are collectively referred to as a DAP. A local area network such as Fiber Distributed Data Interface (FDDI) LAN **10201** is used to connect various communication devices. In the configuration depicted, Transaction Server (TS) **10205** is connected to the LAN **10201**. Telephony switches such as

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switch **10210** and switch **10220** are connected to LAN **10201** through Communication Servers (CS) **10215** and **10225**, respectively. In the example shown, CS **10225** communicates with the switches utilizing a protocol termed Application Data Field (ADF) **10245**. Gateway **10230** connects to the LAN **10201** and provides communication between the

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Customer Access Processor (CAP). The CAP **10235** is typically a microprocessor such as the Intel Pentium, RISC or Motorola 68xxx family. The DAP would send a transaction query to the CAP. The CAP performs a database lookup to return routing instruction based upon, for example, the status of how many operators are available at a particular customer service center. The CAP returns a response that indicates how a call should be routed based upon that database lookup. The DAP uses that information basically as an extension of its own database. The DAP would then interpret

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the information received from the CAP **10235** and translate it into routing information that the switch requires to route the call to where the customer required.

- 5 Figure **72** depicts the operation of DAPs **10240**, individually labeled as DAPs **10241**, **10242** and **10243**. Routing and customer profile information is entered into the order entry system **10235** after validation and the information is routed to the Service Control Manager (SCM) **10230**. SCM **10320** sends the routing and customer profile information to each of the
- 10 DAPs in the network.

For example, if a problem arises with Windows95, a customer would call 1-800-FIX-WIN95. The call enters the network at Originating Switch **10350** which would initiate a transaction to a DAP **10241-3** querying for

15 appropriate routing information for the call. The queried DAP recognizes the number, creates a transaction and routes it to the appropriate gateway **10230** that is connected to the appropriate CAP **10235** (in this case the CAP associated with the Microsoft company). The CAP **10235** receives the transaction and determines that the customer service center in New York is

20 swamped, but the customer service center in California is not very busy (time of day could account for the reason in this case). The CAP **10235** would send a response back to the queried DAP **10241-3** (via the gateway **10230**) indicating that this particular 1-800-FIX-WIN95 call should be routed to the California customer service center. The selected DAP **10241-3**

25 translates the transaction information into a specific Switch ID (SWID) and a specific Terminating Trunk Group (TTG) that corresponds to the route out of the MCI network necessary to arrive at the California customer service center. The selected DAP **10241-3** transmits this response information to the originating switch **10350** which routes the original call to

30 1-800-FIX-WIN95 to the correct Terminating switch **10351**, as indicated in the DAP response via the SWID.

The terminating switch **10351** then determines the correct Terminating Trunk Group (TTG) utilizing information transmitted via SS7 network created from a parameter in the original DAP response, and routes the call to the California customer service center. When a call is routed through a switch, it is passed via a Direct Access Line (DAL) connection such as DAL **10386** to the customer PBX **10387** which delivers the call to the target telephone **10361**.

Figure **73** depicts the process by which a telephone connects to a release link trunk for 1-800 call processing. A telephone such as telephone **10410** is connected to local exchange carrier (LEC) **10415**. The user of telephone **10410** uses the telephone keypad to enter a 1-800 number, which causes LEC **10415** to route the call to MCI Originating switch **10420**. In order to process the 1-800 request, switch **10420** must communicate with ISN **10480**. Switch **10420** therefore connects the call to bridging switch **10440**, which is connected to Intelligent Service Network **10480** via a release link trunk **10490**. Bridging switch **10440** passes the DAP request with the 1-800 information to ISN **10480**, which passes it to the addressed DAP **10241**. DAP **10241** examines the 1-800 request and selects the appropriate release link trunk **10490**, which it connects to MCI D switch **10420**, which in turn is connected to the LEC **10415** which is ultimately connected to telephone **10410**, thereby completing the call. ANI is a standard term in the industry that refers to Automatic Number Identification (ANI). ANI can be used to complete the call. This is the information that the MCI network receives from the LEC To identify where the call originated from. In simple terms, it would be your home phone number if you originated the call. It could also be the payphone number that a credit card caller originated from, so it is not always used to determine to whom to bill the call.

A similar process may be used to connect telephone **10450** through LEC **10455** to a switch **10460** utilizing a bridging switch **10440** to bridge the call to the release link trunk **10490** through ISN **10480**.

Figure **74** depicts the customer side of a DAP procedure request. In the home and small office environment, devices such as modem **10510**, telephone **10515** and fax **10510** are plugged into a standard RJ11 jack **10520**, which is connected to the local exchange carrier. Local exchange carrier **10525** connects to switch **10530** via common business lines **10527**. In a large office environment, an office equipped with a PBX **10540** may connect to switch **10530** via dedicated access line (DAL) **10547**, without the involvement of the local carrier. Switch **10530** issues DAL procedure request to DAP **10560**, which selects routing **10570** for the call, as will be more fully described with respect to Figure **75**.

Figure **75** depicts operation of the switch **10530** to select a particular number or "hotline" for a caller. Switch **10530** accepts an incoming call from CBL **10527** or DAL **10547**, and contacts DAP **10560** for instructions on routing the call. DAP **10560** returns routing information encoded in the form of a pseudo-telephone number. The pseudo telephone number has the same format as an ordinary telephone number but instead encodes a 3-digit switch identifier (SWID) and a file number of a file that identifies a desired Terminating Trunk Group (TTG). Switch **10530** contacts the switch **10610** identified by the SWID and passes to it the file number. Switch **10610** uses the TTG to select the appropriate modem pool **10620** to complete the connection. The modem pool in turn provides an Internet Protocol (IP) connection **10630** to such services as authentication service **10640** and to Basic Internet Protocol Platform (BIPP) **10650**. The BIPP **10650** is composed of packet switches, such as ATM switches, that transfer IP packets from one node to another. Authentication service **10640** optionally performs security functions to authenticate the calling party and to prevent unauthorized access to the Internet. It may also be used to formulate billing information necessary to ensure proper reconciliation for customers that access the Internet via the TTG hotline. The provision of this hotline function enables routing of the call through switches **10530** and **10610**



without the use of expensive FGD links such as the FGD **10380** depicted in Figure **72**.

Figure **76** depicts the operation of a gateway for selectively routing telephone calls through the Internet. Terminal switch **10710** connects to an ARU **10720** to request routing information. ARU **10720** interrogates the properties of the call to determine whether it is a candidate for Internet routing. If the call is a modem call, the call is routed to modem pool **10730**.

From modem pool **10730**, the call may then be routed to Basic Internet Protocol Platform **10750** to provide Internet access to the modem call. The modem call is optionally authenticated by authentication service **10760**. If the call is a fax call, the call is routed to modem pool **10730**. From modem pool **10730**, the call may then be routed to Basic Internet Protocol Platform **10750** and from there to fax gateway **10770**. As with a modem call, a fax call is optionally authenticated by authentication service **10760**.

If the call to be routed is a voice call, ARU **10720** waits for the user to dial a calling card number and a destination telephone number. ARU **10720** interrogates the destination number to determine whether the destination telephone is an international call or a domestic call. Domestic calls are returned to the termination switch **10710** for conventional routing.

International calls are encoded as data by providing the analog voice signal to coder/decoder (or "codec") **10725**. Codec **10725**, having encoded the signal as digital data then routes the call through modem pool **10730** and Basic Internet Protocol Platform **10750**.

In an alternate embodiment, when the call is delivered to the ISN by the network switch, an SS7 ISUP message is routed to the resident ISN switch. That switch is called a DMS-ACD. ACD stands for Automatic Call

Distributor. The ACD takes an incoming SS7 ISUP message and converts it to SCAI (Switch/Computer Application Interface). On the opposite side of the ACD is a device called an ISN-AP (Intelligent Services Network - Adjunct

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Processor). SCAI is the language spoken between the ACD and the ISN-AP. So, there are two interfaces: on the inbound side from the network to the ACD a SS7 ISUP, and on the outbound side from the ACD to the ISN-AP a SCAI. These are simply two different signaling protocols.

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When the call arrives at the ACD from the network, the ACD doesn't automatically know where to route the call. The ACD receives its instructions from the ISN-AP. To do that, the ACD takes the ISUP signaling parameters received from the network and converts them to SCAI protocol format and sends a SCAI message to the ISN-AP.

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Specifically, the SCAI message is called DV\_Call\_Received (DV means Data/Voice. When the ISN-AP receives this message it looks at the Called Party Number (CPN) field within the SCAI message and, based on that number, determines where in the ISN the ACD should route the call. When the ISN-AP has made the decision, the ISN-AP builds a DV\_Call\_Received\_RR (a response to the previous message -- RR means Return Result). Within the RR message are instructions to the ACD regarding the ACD port to which the call should be terminated.

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For this service, the ACD is instructed to terminate the call to the ACD ports connected to the ARU **10720**. When the call arrives at the ARU **10720**, there are two things that can happen:

1) If the caller has dialed the access number from an:

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a) telephone or

b) fax machine,

that caller will hear a voice prompt that says "Press 1 for voice, or press 2 for fax."

2) If the caller has dialed the access number using a PC modem, that caller likely won't hear any announcement. What will happen is that a ARU timer will expire. Expiration of that timer indicates to the ARU that this call is from a modem.

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The call flow for these scenarios can be confusing, so let's consider them one at a time.

5 If a caller has called from a telephone, then at the ARU **10720** voice prompt, the caller will press 1 (for voice service). At that time, the ARU **10720** will collect further information about the caller. This feature is a modified version of existing calling card services that telephone companies offer today. The ARU **10720** first collects the card number, then collects the  
10 number the caller wishes to terminate to. After capturing this information, the ARU **10720** sends the data across the ISN Local Area Network (LAN) to a validation data base. In addition to verifying the calling card number, the data base also ensures that the terminating number is within the allowed dialing plan for the card holder.

15 Once the card information is verified, the ARU **10720** will then determine if the terminating number is domestic or international. If the terminating number is domestic, the ARU **10720** will release the call from the ISN back into the voice network where the call will be routed to its intended  
20 destination. If the terminating number is international, the call will be routed to a device called a CODEC (Code DECode) resident at a BIPP site. The purpose of the CODEC is to convert the voice signal to data for routing over the Internet using UDP/IP.

25 In an alternate embodiment, if the caller has called from a fax machine, at the ARU **10720** voice prompt, the caller will press 2 indicative of a request for fax service. At that time, the ARU **10720** will route the call to a fax platform that is a guaranteed fax service **10770** for those who don't have the time or patience to wait for a terminating fax number to become available, or  
30 for those who need assistance delivering an international fax. An embodiment collects information about the caller and terminating number, then instructs the caller to begin the send process. The fax service **10770**

captures the fax and stores it for delivery at a later time.

If a caller has dialed via a PC modem, then at the ARU **10720** voice prompt, the caller will likely not hear any announcement. This is intended. It is possible that the caller may hear the ARU **10720** announcement via the PC speaker or modem, but the caller is unable to make an entry at the ARU **10720** and will ultimately time-out (as described above), indicating to the ARU **10720** that this call originated from a PC modem. The ARU **10720** releases the call back into the network for termination to a Modem Pool (MP) **10730** at one of MCI's BIPP **10750** sites.

Figure **77** depicts the operation of the ARU of Figure **76** deployed in a centralized architecture. Telephone **10810** communicates through local exchange **10820** to switch **10710**. Switch **10710** connects through bridge switch **10830** to Intelligent Services Network (ISN) **10840** to ARU **10720**. ARU **10720** controls the call routing either directly to the modem pool **10730**, via codec **10725** to the BIPP **10750** or to a fax server.

Figure **78** depicts the operation of the ARU of Figure **77** deployed in a distributed architecture. Telephone **10910** communicates through local exchange **10920** to switch **10710**. Switch **10710** connects through bridge switch **10930** to intelligent service network **10840** to ARU **10720**. ARU **10720** operates under control of voice response unit **10950**, connected through switch **10911** and bridge switch **10930** to control the call routing either through switch **10912** to modem pool **10730**, or via a codec. The ARU must be placed in the ISN, but the other pieces (i.e., ARUs **10850** and **10950**, modem pool **10730** and codec **10725**) may be placed anywhere in the network.

Figure **79A** and **79B** depict the operation of sample applications for Internet call routing. Figure **79A** depicts a sample application for customer service. Intranet computer **11010** connects to the Internet **11020** as described

above, and thereby connects to a server computer **11025**. Server computer **11025**, through designation of an Internet resource, such as a packing shipping service provider **11030**, via a Uniform Resource Locator permits a user of Intranet computer **11010** to query the provider **11030**. Through  
5 internal functions shown as **11032**, provider **11030** may provide in response to user interactions such resources as a full motion video display **11035** from its customer service department, or direct interactive conversations with a customer service representative **11037**.

10 Figure **79B** depicts a number of applications for caller-initiated consumer transactions. A consumer calling a predetermined number **11040** (such as 555-IMCI, 555-PAGE or 555-RNET) may be routed to a particular transaction processor through the use of common business line (CBL) **11050**. CBL **11050** connects to switch **11060**. Switch **11060** calls DAP  
15 **11065**, which analyzes the incoming call using Automatic Number Identification (ANI) to determine the identity of the caller. Based on the identity of the caller in combination with the number called, DAP **11065** directs switch **11060** to direct calls to 555-IMCI, for example, to Data Network Interface (DNI) **11070**. DNI **11070** serves as an interface between  
20 the switch network and a database host **11075** capable of processing point-of-sale debit and credit card transactions. In addition to routing the call based on the target telephone number, the ANI data is used to identify the caller to the database host **11075**. Similarly, a call to 555-PAGE may be routed to the PBX of a paging service company **11080**, and the ANI data  
25 used to select a particular paging service **11085** offered by the company. Finally, calls to 555-RNET may be used to provide connection to the Basic Internet Protocol Platform **11090**, as previously described.

Figure **80** illustrates a configuration of a switching network offering voice  
30 mail and voice response unit services, as well as interconnection into a service provider, in accordance with a preferred embodiment. Telephones **11111** and **11112** enter the network via switches **11120** and **11121**

respectively, Switch **11121**, in addition to offering network entry to telephone **11112**, provides an intermediate link for switch **11120**. Switch **11125** provides interconnection for switch **11121**, as well as accepting direct input such as PBXs **11130**. Switch **11125** provides connections to voice response unit server **11140** and to voice mail server **11145**. In addition, switch **11125** connects to service provider server **11150** through Dial Access Line **11155**. Service provider **11150** further routes incoming calls according to service requested and authenticity to paging service **11060** or to email service **11070** using BIPP **11075** connected through modem pool **11076**.

### ***B. Another Embodiment***

Figure **81** illustrates an inbound shared Automated Call Distributor (ACD) call with data sharing through a database in accordance with a preferred embodiment. A dial-up internet user **12000** uses a computer modem to dial a telephone number. The telephone call is routed from the RBOC/LEC Switch **12002** to MCI Switch 1 **12004**. MCI Switch 1 **12004** queries the Network Control System (NCS) **12020** to ask for a route for the given ANI and dialed telephone number. The NCS **12020** returns a terminating address, instructing MCI Switch 1 **12004** to route the call to a trunk group on MCI Switch 2 **12006**.

MCI Switch 2 **12006** completes the call to the Internet Access Device **12008**. The modem in the dial-up user's computer **12000** and the Internet Access Device **12008** establish a data session, and data packets are exchanged according to the Point to Point Protocol (PPP). From the Internet Access Device **12008**, PPP packets are translated to Internet Protocol (IP) packets and sent on the internet, represented by **12026**. Similarly, the Internet Access Device **12008** receives IP packets from the internet **12026** and sends them to the dial-up user **12000**.

Before packets are allowed to pass freely through the Internet Access Device

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**12008**, the dial-up user **12000** is authenticated. This is done using the username/password method, or the challenge/response method.

In the username/password method, the Internet Access Device **12008**  
5 prompts the dial-up user **12000** to enter a user name. The dial-up user  
**12000** types a user name into the computer, and the user name is  
transported from the dial-up user **12000** to the Internet Access Device  
**12008**. The Internet Access Device **12008** then prompts the dial-up user  
10 **12000** to enter a password. The dial-up user **12000** types a password into  
the computer, and the password is transported from the dial-up user **12000**  
to the Internet Access Device **12008**. Once the user name and password are  
received, the Internet Access Device **12008** sends an authentication request,  
containing the user name and password, to the Authentication Server  
15 **12014**. The Authentication Server **12014** checks the user name/password  
against a database of valid user name/password pairs. If the entered user  
name/password are in the database, the Authentication Server **12014**  
sends an "user authenticated" message back to the Internet Access Device  
**12008**. If the entered user name/password are not in the database, the  
Authentication Server **12014** sends a "user not authenticated" message  
20 back to the Internet Access Device **12008**.

In the challenge/response method, the Internet Access Device **12008**  
prompts the dial-up user **12000** to enter a user name. The dial-up user  
**12000** types a user name into the computer, and the user name is  
25 transported from the dial-up user **12000** to the Internet Access Device  
**12008**. The Internet Access Device **12008** then prompts the dial-up user  
**12000** to with a challenge, which is a sequence of digits. The dial-up user  
**12000** computes a response to the challenge by entering the challenge digits  
and a shared secret key into response-generation program. The shared  
30 secret key is known only to the dial-up user **12000** and the Authentication  
Server **12014**. The dial-up user **12000** types in the computed response,  
and the response is transported from the dial-up user **12000** to the Internet

Access Device **12008**. The Internet Access Device **12008** sends an authentication message, containing the user name, the challenge, and the response, to the Authentication Server **12014**. The Authentication Server reads the user name, finds the shared secret key for that user name, and  
5 uses the shared secret key and the challenge digits to compute the response. The computed response is compared to the response given by the dial-up user **12000**. If the responses match, a "user authenticated" message is sent from the Authentication Server **12014** to the Internet Access Device **12008**. If the responses do not match, a "user not  
10 authenticated" message is sent from the Authentication Server **12014** to the Internet Access Device **12008**.

Whether the user name/password or challenge/response methods of authentication are used, the rest of this description assumes a "user  
15 authenticated" message is sent from the Authentication Server **12014** to the Internet Access Device **12008**, and IP packet communication is allowed to flow freely through the Internet Access Device **12008**.

The dial-up user **12000** starts a web browser and browses web pages from  
20 the Corporate Web Server **12024**. The Corporate Web Server **12024** records the web pages viewed by the dial-up user **12000** in the Call Center Server **12028** using a unique identifier. The dial-up user **12000** may also submit information to the Corporate Web Server **12024** by filling out Hypertext Markup Language (HTML) forms and submitting the information to the  
25 Corporate Web Server **12024**. The Corporate Web Server **12024** deposits this information in the Call Center Server **12028** using the same unique identifier.

The dial-up user **12000** browses another web page, upon which an icon is  
30 displayed along with text indicating that the user can talk to an agent by clicking on the icon. Clicking on the icon results in a download of a Multipart Internet Mail Extensions (MIME) file from the Corporate Web



Server **12024** to the dial-up user's **12000** web browser. The MIME file contains an alphanumeric string identifying the destination for a resulting phone call, called a user-identifier. The browser invokes a helper application or browser plug-in to handle the file of the designated MIME type. The helper application reads the MIME file, and launches a query with the MIME file contents from the dial-up user **12000** to the Directory Server **12012**. The Directory Server **12012** translates the alphanumeric string from the MIME file into the destination IP Address of the destination Internet Telephony Gateway **12018**, and sends a message containing the IP Address back to the dial-up user's **12000** helper application. The helper application then launches an internet telephony call to the Internet Telephony Gateway's **12018** IP Address, providing to the Internet Telephony Gateway **12018** the alphanumeric string from the MIME file, as a part of the call setup.

The Internet Telephony Gateway **12018** translates the given alphanumeric string into a destination telephone number, and dials the destination telephone number on it's telephone network interface to MCI Switch 2 **12006**. MCI Switch 2 **12006** queries the NCS **12020** with the dialed telephone number, requesting routing instructions. The NCS **12020** determines the appropriate route and sends routing instructions back to MCI Switch 2 **12006** to route the call to a particular trunk group on MCI Switch 1 **12004**. The call is routed to MCI Switch 1 **12004**, and then the call is completed to the Automated Call Distributor (ACD) **12022**. When the ACD **12022** answers the call, the Internet Telephony Gateway **12018** completes a constant audio path between the ACD **12022** and the Dial-up user **12000**, with the audio from the ACD to the Internet Telephony Gateway being circuit-switched PCM audio, and the audio from the Internet Telephony Gateway to the Dial-up user being packetized encoded digital audio, using any audio codec.

When the call is delivered to the ACD **12022**, the unique record identifier is

delivered to the ACD via telephone network signaling mechanisms. When an agent in the call center **12026** receives the call, the unique record identifier is displayed for the agent, and the call information entered by the dial-up user **12000** is retrieved from the Call Center Server **12028**.

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## **XXI. BILLING**

Another embodiment in accordance with this invention relates generally to telecommunication networks, and more specifically, to switches of a telecommunication network that generate call records using a flexible and expandable record format and generates a unique call identifier for each telephone call that traverses the network.

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A typical telecommunication network comprises multiple telecommunication switches located throughout a geographical area. When a user makes a call, the call may be routed through one or more switches before reaching its destination.

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Figure **82** illustrates an exemplary telecommunications system **30102** across the United States. For purposes of illustration, a caller **30104** places a call from Los Angeles, California to a party **30112** located in New York City, New York. Such a call is typically transmitted across three (3) switches: the Los Angeles, California switch **30106**; the Chicago, Illinois switch **30108**; and the New York City, New York switch **30110**. In this scenario, the originating switch is the Los Angeles, California switch **30106**, and the terminating switch is the New York City, New York switch **30110**.

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Each of the switches, **30106-30110**, is connected to two (2) or more Data Access Points (DAP) **30116-30120**, for instance a primary DAP **30116-30120** and a backup DAP **30116-30120**. A DAP **30116-30120** is a facility that receives requests for information from the switches **30106-30110**, processes the requests, and returns the requested information back to the

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requesting switch **30106-30110**. The switches **30106-30110** use information from the DAPs **30116-30120** to process calls through the network.

- 5 When a call passes through one of the switches, **30106-30110**, that switch creates a call record. The call record contains information on the call, including but not limited to: routing, billing, call features, and trouble shooting information. After the call is terminated, each switch **30106-30110** that processed the call completes the associated call record. The  
10 switches **30106-30110** combine multiple call records into a billing block.

- When a switch **30106-30110** fills the billing block, the switch **30106-30110** sends the billing block to a billing center **30114**. Thus, the billing center **30114** receives one billing block from each switch **30106-30110** that  
15 handled the call, which in this case would be three billing blocks. The billing center **30114** searches each billing block and retrieves the call record associated with the call, thereby retrieving one call record per switch **30106-30110** that handled the call. The billing center **30114** then uses one or more of the retrieved call records to generate a billing entry. The billing  
20 center **30114** is also connected to each DAP **30116-30120** to retrieve information regarding a switch **30106-30110** or call record.

- To better understand the invention, it is useful to describe some additional terminology relating to a telecommunication network. A telephone call  
25 comes into a switch on a transmission line referred to as the originating port, or trunk. The originating port is one of many transmission lines coming into the switch from the same location of origin. This group of ports is the originating trunk group. After processing an incoming call, the switch transmits the call to a destination location, which may be another switch, a  
30 local exchange carrier, or a private branch exchange. The call is transmitted over a transmission line referred to as the terminating port, or trunk. Similar to the originating port, the terminating port is one of a group of ports

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going from the switch to the same destination. This group of ports is the terminating trunk group.

Contemporary telecommunication networks provide customers with the capability of using the general public network as well as the capability of defining a custom virtual network (VNet). With a VNet, a customer defines a private dialing plan, including plan telephone numbers. A VNet customer is not limited to the default telephone numbers allocated to a public telecommunication system dedicated to a specific geographic region, but can define custom telephone numbers.

Upon processing a telephone call, a switch must generate a call record large enough to contain all of the needed information on a call. The call record, however, must not be so large that the typical call results in the majority of the record fields in the call record to be unused. In such a case, storing such call records results in large amounts of wasted storage, and transmitting such a call record causes unnecessary transmissions.

One solution for creating and processing call records is to implement a fixed length call record format, such as a 32-word call record. A word is two (2) bytes, or sixteen (16) bits. A fixed length record format, however, cannot expand when new call features are implemented. More importantly, fixed call record formats cannot handle expanded data fields as the telecommunications network becomes more complex with new features and telephone numbers.

Contemporary fixed length record formats include time point fields recording local time in three (3) second increments where local switch time represents the time of day at a switch. The timepoint fields are used by the network switches, billing center, and other network subsystems. Each subsystem, however, may require the time period for a different use and in a different format, such as in an epoch time format. Epoch time is the number of one

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(1) second increments since a particular date and time in history. For example, the billing center requires epoch time for its billing records whereas switch reports and error logs require local switch time.

5 A problem also arises when using only local switch time in that there is no accommodation for time changes due to daylight savings time. In addition, each subsystem may require a finer granularity of precision than the current three (3) second increments. By providing only local switch time at three (3) second increments, the switches have passed the burden of  
10 translating the time into a usable format to the network subsystems. The fixed record format cannot accommodate the various time period requirements because it only contains the time periods in local switch time at a low level of precision. Because of its fixed nature, the fixed record format cannot expand to include different time formats, nor to include a  
15 finer granularity of precision, such as a one (1) second increment.

Therefore, there is a need for switches of a telecommunications network to store call record information in a flexible and expandable format. There is a further need to provide time point fields with one (1) second granularity in a  
20 flexible format that easily and efficiently responds to daylight savings time and time zone changes.

There is also a need to match all of the call records associated with a specific telephone call. For example, for proper billing and cost control, it is  
25 necessary for the billing center to match the originating switch's call record to the terminating switch's call record. Also, for troubleshooting and security purposes, it may be necessary to trace a specific telephone call through the network with ease in order to isolate problem areas.

30 Therefore, there is a need for switches of a telecommunications network to uniquely identify each telephone call that traverses the network, thereby uniquely identifying all of the call records associated with a specific

telephone call.

**A. An Embodiment**

**1. Call Record Format**

An embodiment solves the problem of providing a flexible and expandable  
5 call record format by implementing both a small and a large call record  
format. In particular, the embodiment implements a default 32-word call  
record format, plus an expanded 64-word call record format. An  
embodiment uses a 32-word call record format for the typical telephone call,  
which comprises the majority of all telephone calls, and uses a 64-word call  
10 record format when additional information is needed regarding the call.  
This implementation provides the flexibility needed to efficiently manage  
varying data requirements of a given call record. New call features can be  
developed and easily incorporated into the variable call record format of the  
present invention.

15

This embodiment also records timepoints in the epoch time format. The  
embodiment records the origination time of a call in epoch time format, and  
the remaining timepoints are offsets, or the number of seconds, from that  
origination time. This embodiment solves the problems associated with  
20 converting to and from daylight savings time because daylight savings time  
is a local time offset and does not affect the epoch time. Furthermore, the  
timepoints in epoch time format require less space in the call record than  
they do in local switch time format.

25 The epoch time format may represent coordinated universal time (UTC), as  
determined at Greenwich, England, which has a time zone of zero (0) local  
switch time, or any other time. Epoch time is only a format and does not  
dictate that UTC must be used. The billing time and the local switch time  
may be in UTC or local time, and the local switch time may not necessarily  
30 be the same time that is used for billing. Therefore, the switch must keep

billing time and local switch time separate in order to prevent the problems that occur during daylight savings time changes.

## 2. Network Call Identifier

5 This embodiment solves the problem of uniquely identifying each telephone call and all of the call records associated with a specific telephone call by providing a unique identifier to each call record. It generates a network call identifier (NCID) that is assigned to each call record at the point of call origination, that is, the originating switch generates an NCID for each  
10 telephone call. The NCID accompanies the associated telephone call through the telecommunications network to the termination point at the terminating switch. Therefore, at any point of a telephone call in the network, the associated NCID identifies the point and time of origin of the telephone call. Each switch through which the telephone call passes  
15 records the NCID in the call record associated with the call. The NCID is small enough to fit in a 32-word call record, thereby reducing the data throughput and storage. The NCID provides the billing center and other network subsystems with the ability to match originating and terminating call records for a specific telephone call.

20

This embodiment also provides the switch capability of discarding a received NCID and generating a new NCID. A switch discards a received NCID if the NCID format is invalid or unreliable, thereby ensuring a valid unique identifier to be associated with each call going through the network. For  
25 instance, an NCID may be unreliable if generated by third party switches in the telecommunications network.

This embodiment relates to switches of a telecommunication network that generate call records using a flexible and expandable record format. The call  
30 record formats include a small (preferably 32-word) and a large (preferably 64-word) expanded format. It would be readily apparent to one skilled in the

relevant art to implement a small and large record format of different sizes.

The embodiment also relates to switches of a telecommunication network that generate a unique NCID for each telephone call traversing the network.

5 The NCID provides a mechanism for matching all of the call records associated with a specific telephone call. It would be readily apparent to one skilled in the relevant art to implement a call record identifier of a different format.

10 The chosen embodiment is computer software executing within a computer system. Figure **83** shows an exemplary computer system. The computer system **30202** includes one or more processors, such as a processor **30204**. The processor **30204** is connected to a communication bus **30206**.

15 The computer system **30202** also includes a main memory **30208**, preferably random access memory (RAM), and a secondary memory **30210**. The secondary memory **30210** includes, for example, a hard disk drive **30212** and/or a removable storage drive **30214**, representing a floppy disk drive, a magnetic tape drive, a compact disk drive, etc. The removable  
20 storage drive **30214** reads from and/or writes to a removable storage unit **30216** in a well known manner.

Removable storage unit **30216**, also called a program storage device or a computer program product, represents a floppy disk, magnetic tape,  
25 compact disk, etc. The removable storage unit **30216** includes a computer usable storage medium having therein stored computer software and/or data.

Computer programs (also called computer control logic) are stored in main  
30 memory **30208** and/or the secondary memory **30210**. Such computer programs, when executed, enable the computer system **30202** to perform the functions of the present invention as discussed herein. In particular,



the computer programs, when executed, enable the processor **30204** to perform the functions of the present invention. Accordingly, such computer programs represent controllers of the computer system **30202**.

5           **B.    [Another Embodiment]**

Another embodiment is directed to a computer program product comprising a computer readable medium having control logic (computer software) stored therein. The control logic, when executed by the processor **30204**, causes the processor **30204** to perform the functions as described herein.

10

Another embodiment is implemented primarily in hardware using, for example, a hardware state machine. Implementation of the hardware state machine so as to perform the functions described herein will be apparent to persons skilled in the relevant arts.

15

1.     Call Record Format

This embodiment provides the switches of a telecommunication network with nine (9) different record formats. These records include : Call Detail Record (CDR), Expanded Call Detail Record (ECDR), Private Network Record (PNR), Expanded Private Network Record (EPNR), Operator Service Record (OSR), Expanded Operator Service Record (EOSR), Private Operator Service Record (POSR), Expanded Private Operator Service Record (EPOSR), and Switch Event Record (SER). Each record is 32 words in length, and the expanded version of each record is 64 words in length.

25

Example embodiments of the nine (9) call record formats discussed herein are further described in Figures **82-86**. The embodiments of the call records of the present invention comprise both 32-word and 64-word call record formats. It would be apparent to one skilled in the relevant art to develop  
30   alternative embodiments for call records comprising a different number of

words and different field definitions. Table **301** of the Appendix contains an example embodiment of the CDR and PNR call record formats. Figure **84** shows a graphical representation of the CDR and PNR call record formats. Table **302** of the Appendix contains an example embodiment of the ECDR and EPNR call record formats. Figures **85A** and **85B** show a graphical representation of the ECDR and EPNR call record formats. Table **303** of the Appendix contains an example embodiment of the OSR and POSR call record formats. Figure **86** shows a graphical representation of the OSR and POSR call record format. Table **304** of the Appendix contains an example embodiment of the EOSR and EPOSR call record formats. Figures **87(A)** and **87(B)** show a graphical representation of the EOSR and EPOSR call record formats. Table **305** of the Appendix contains an embodiment of the SER record format. Figure **88** shows a graphical representation of the SER record format.

The CDR and PNR, and thereby the ECDR and EPNR, are standard call record formats and contain information regarding a typical telephone call as it passes through a switch. The CDR is used for a non-VNET customer, whereas the PNR is used for a VNET customer and is generated at switches that originate VNET calls. The fields of these two records are identical except for some field-specific information described below.

The OSR and POSR, and thereby the EOSR and EPOSR, contain information regarding a telephone call requiring operator assistance and are generated at switches or systems actually equipped with operator positions. A switch completes an OSR for a non- VNET customer and completes a POSR for a private VNET customer. These records are only generated at switches or systems that have the capability of performing operator services or network audio response system (NARS) functions. The formats of the two (2) records are identical except for some field-specific information described below.

A SER is reserved for special events such as the passage of each hour mark, time changes, system recoveries, and at the end of a billing block. The SER

record format is also described in more detail below.

Figures **89(A)** and **89(B)** collectively illustrate the logic that a switch uses to determine when to use an expanded version of a record format. A call

5 **30202** comes into a switch **30106-30110** (called the current switch for reference purposes; the current switch is the switch that is currently processing the call), at which time that switch **30106-30110** determines what call record and what call record format (small/default or large/expanded) to use for the call's **30802** call record. In this regard, the  
10 switch **30106-30110** makes nine (9) checks for each call **30802** that it receives. The switch **30106-30110** uses an expanded record for a call **30802** that passes any check as well as for a call **30802** that passes any combination of checks.

15 The first check **30804** determines if the call is involved in a direct termination overflow (DTO) at the current switch **30106-30110**. For example, a DTO occurs when a customer makes a telephone call **30802** to an **30800** number and the original destination of the 800 number is busy. If the original destination is busy, the switch overflows the telephone call  
20 **30802** to a new destination. In this case, the switch must record the originally attempted destination, the final destination of the telephone call **30802**, and the number of times of overflow. Therefore, if the call **30802** is involved in a DTO, the switch **30106-30110** must complete an expanded record (ECDR, EPNR, EOSR, EPOSR) **30816**.

25

The second check **30806** made on a call **30802** by a switch **30106-30110** determines if the calling location of the call **30802** is greater than ten (10) digits. The calling location is the telephone number of the location from where the call **30802** originated. Such an example is an international call  
30 which comprises at least eleven (11) digits. If the calling location is greater than ten (10) digits, the switch records the telephone number of the calling location in an expanded record (ECDR, EPNR, EOSR, EPOSR) **30816**.

A switch **30106-30110** makes a third check **30808** on a call **30802** to determine if the destination address is greater than seventeen (17) digits. The destination address is the number of the called location and may be a  
5 telephone number or trunk group. If the destination is greater than seventeen (17) digits, the switch records the destination in an expanded record (ECDR, EPNR, EOSR, EPOS) **30816**.

10 A switch **30106-30110** makes a fourth check **30810** on a call **30802** to determine if the pre-translated digits field is used with an operated assisted service call. The pre-translated digits are the numbers of the call **30802** as dialed by a caller if the call **30202** must be translated to another number within the network. Therefore, when a caller uses an operator service, the switch **30106-30110** records the dialed numbers in expanded record  
15 (EOSR, EPOS) **30816**.

In a fifth check **30812** on a call **30802**, a switch **30106-30110** determines if the pre-translated digits of a call **30802** as dialed by a caller without operator assistance has more than ten (10) digits. If there are more than ten  
20 (10) pre-translated digits, the switch **30106-30110** records the dialed numbers in expanded record (ECDR, EPNR) **30816**.

In a sixth check **30814** on a call **30802**, a switch **30106-30110** determines if more than twenty-two (22) digits, including supplemental data, are  
25 recorded in the Authorization Code field of the call record. The Authorization Code field indicates a party who gets billed for the call, such as the calling location or a credit card call. If the data entry requires more than twenty-two (22) digits, the switch **30106-30110** records the billing information in an expanded record (ECDR, EPNR, EOSR, EPOS) **30816**.

30

In a seventh check **30820** on a call **30802**, a switch **30106-30110** determines if the call **30802** is a wideband call. A wideband call is one that

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requires multiple transmission lines, or channels. For example, a typical video call requires six (6) transmission channels : one (1) for voice and five (5) for the video transmission. The more transmission channels used during a wideband call results in a better quality of reception. Contemporary telecommunication systems currently provide up to twenty-four (24) channels. Therefore, to indicate which, and how many, of the twenty-four channels is used during a wideband call, the switch records the channel information in an expanded record (ECDR, EPNR) **30828**.

10 In an eighth check **30822** on a call **30802**, a switch **30106-30110** determines if the time and charges feature was used by an operator. The time and charges feature is typically used in a hotel scenario when a hotel guest makes a telephone call using the operator's assistance and charges the call **30802** to her room. After the call **30802** has completed, the operator informs the hotel guest of the charge, or cost, of the call **30802**. If the time and charges feature was used with a call **30802**, the switch **30106-30110** records the hotel guest's name and room number in an expanded record (EOSR, EPOSr) **30832**.

20 The ninth, and final, check **30824** made on a call **30802** by a switch **30106-30110** determines if the call **30802** is an enhanced voice service/network audio response system (EVS/NARS) call. An EVS/NARS is an audio menu system in which a customer makes selections in response to an automated menu via her telephone key pad. Such a system includes a NARS switch on which the audio menu system resides. Therefore, during an EVS/NARS call **30802**, the NARS switch **30106-30110** records the customer's menu selections in an expanded record (EOSR, EPOSr) **30832**.

If none of the checks **30804-30824** return a positive result, then the switch **30106-30110** uses the default record format (OSR, POSr) **30830**. Once the checks have been made on a call, a switch generates and completes the appropriate call record. Call record data is recorded in binary

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and Telephone Binary Coded Decimal (TBCD) format. TBCD format is illustrated below:

0000 = TBCD-Null

0001 = digit 1

5 0010 = digit 2

0011 = digit 3

0100 = digit 4

0101 = digit 5

0110 = digit 6

10 0111 = digit 7

1000 = digit 8

1001 = digit 9

1010 = digit 0

1011 = special digit 1 (DTMF digit A)

15 1100 = special digit 2 (DTMF digit B)

1101 = special digit 3 (DTMF digit C)

1110 = special digit 4 (DTMF digit D)

1111 = special digit 5 (Not Used)

20 All TBCD digit fields must be filled with TBCD-Null, or zero, prior to data being recorded. Where applicable, dialed digit formats conform to these conventions :

N = digits 2-9

X = digits 0-9

25 Y = digits 2-8

Thus, if the specification for a call record field contains a N, the valid field values are the digits 2-9.

30 Each call record, except SER, contains call specific timepoint fields. The timepoint fields are recorded in epoch time format. Epoch time is the number of one second increments from a particular date/time in history.

The embodiment of the present invention uses a date/time of midnight (00:00 am UTC) on January 1, 1976, but this serves as an example and is not a limitation. It would be readily apparent to one skilled in the relevant art to implement an epoch time based on another date/time. In the records, 5 Timepoint 1 represents the epoch time that is the origination time of the call **30802**. The other timepoint stored in the records are the number of seconds after Timepoint 1, that is, they are offsets from Timepoint 1 that a particular timepoint occurred. All of the timepoint fields must be filled in with "0's" prior to any data being recorded. Therefore, if a timepoint occurs, 10 its count is one (1) or greater. Additionally, timepoint counters, not including Timepoint 1, do not rollover their counts, but stay at the maximum count if the time exceeds the limits.

The switch clock reflects local switch time and is used for all times except 15 billing. Billing information is recorded in epoch time, which in this embodiment is UTC. The Time offset is a number reflecting the switch time relative to the UTC, that is, the offset due to time zones and, if appropriate, daylight savings time changes. There are three factors to consider when evaluating time change relative to UTC. First, there are time zones on both 20 sides of UTC, and therefore there may be both negative and positive offsets. Second, the time zone offsets count down from zero (in Greenwich, England) in an Eastward direction until the International Dateline is reached. At the Dateline, the date changes to the next day, such that the offset becomes positive and starts counting down until the zero offset is reached again at 25 Greenwich. Third, there are many areas of the world that have time zones that are not in exact one-hour increments. For example, Australia has one time zone that has a thirty (30) minute difference from the two time zones on either side of it, and Northern India has a time zone that is fifteen (15) minutes after the one next to it. Therefore, the Time Offset of the call 30 records must account for variations in both negative and positive offsets in fifteen (15) minute increments. The embodiment of the present invention satisfies this requirement by providing a Time Offset representing either

positive or negative one minute increments.

There are two formulas used to convert local switch time to epoch time and back.

i)  $\text{Epoch Time} + (\text{Sign Bit} * \text{Time Offset}) = \text{Local Switch Time}$

ii)  $\text{Local Switch Time} - (\text{Sign Bit} * \text{Time Offset}) = \text{Epoch Time}$

The switch records the Time Offset in the SER using a value where one (1) equals one (1) minute, and computes the Time Offset in seconds and adds this value to each local Timepoint 1 before the call record is recorded. For example, Central Standard Time is six (6) hours before UTC. In this case, the Sign Bit indicates "1" for negative offset and the Time Offset value recorded in the SER would be 360 (6 hours \* 60 minutes/hour = 360 minutes). See Figure **86** for more details on the SER record format. When recording Timepoint 1 in the call record, the switch multiplies the Time Offset by 60, because there is 60 seconds in each 1 minute increment, and determines whether the offset is positive or negative by checking the Sign Bit. This example results in a value of -21,600 (-1\* 360 minutes\* 60 seconds/minute = -21,600 seconds). Using equation (ii) from above, if the local switch time were midnight, the corresponding epoch time might be, for example, 1,200,000,000. Subtracting the Time Offset of -21,600 results in a corrected epoch time of 1,200,021,600 seconds, which is the epoch time for 6 hours after midnight on the next day in epoch time. This embodiment works equally as well in switches that are positioned on the East side of Greenwich where the Time Offset has a positive value.

Two commands are used when changing time. First, Figure **90** illustrates the control flow of the Change Time command **30900**, which changes the Local Switch Time and the Time Offset. In Figure **90**, after a switch operator enters the Change Time command, the switch enters step **30902** and prompts the switch operator for the Local Switch Time and Time Offset from



UTC. In step **30902** the switch operator enters a new Local Switch Time and Time Offset. Continuing to step **30904**, the new time and Time Offset are displayed back to the switch operator. Continuing to step **30906**, the switch operator must verify the entered time and Time Offset before the actual time and offset are changed on the switch. If in step **30906** the switch operator verifies the changes, the switch proceeds to step **30908** and generates a SER with an Event Qualifier equal to two which identifies that the change was made to the Local Switch Time and Time Offset of the switch. The billing center uses the SER for its bill processing. The switch proceeds to step **30910** and exits the command. Referring back to step **30906**, if the switch operator does not verify the changes, the switch proceeds to step **30910** and exits the command without updating the Local Switch Time and Time Offset. For more information on SER, see Figure **86**.

Figure **91** illustrates the control flow for the Change Daylight Savings Time command **31000** which is the second command for changing time. In Figure **91**, after a switch operator enters the Change Daylight Savings Time command, the switch enters step **31002** and prompts the switch operator to select either a Forward or Backward time change. Continuing to step **31004**, the switch operator makes a selection. In step **31004**, if the switch operator selects the Forward option, the switch enters step **31006**. In step **31006**, the switch sets the Local Switch Time forward one hour and adds one hour (count of 60) to the Time Offset. The switch then proceeds to step **31010**. Referring back to step **31004**, if the switch operator selects the Backward option, the switch sets the Local Switch Time back one hour and subtract one hour (count of 60) from the Time Offset. The switch then proceeds to step **31010**.

In step **31010**, the switch operator must verify the forward or backward option and the new Local Switch Time and Time Offset before the actual time change takes place. If in step **31010**, the switch operator verifies the new time and Time Offset, the switch proceeds to step **31012** and generates a

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SER with an Event Qualifier equal to nine which changes the Local Switch Time and Time Offset of the switch. The switch proceeds to step **31014** and exits the command. Referring back to step **31010**, if the switch operator does not verify the changes, the switch proceeds to step **31014** and exits the command without updating the Local Switch Time and Time Offset.

After the successful completion of a Change Daylight Savings Time Command, the billing records are affected by the new Time Offset. This embodiment allows the epoch time, used as the billing time, to increment normally through the daylight savings time change procedure, and not to be affected by the change of Local Switch Time and Time Offset.

## 2. Network Call Identifier

An embodiment provides a unique NCID that is assigned to each telephone call that traverses through the telecommunications network. Thus, the NCID is a discrete identifier among all network calls. The NCID is transported and recorded at each switch that is involved with the telephone call.

The originating switch of a telephone call generates the NCID. The chosen embodiment of the NCID of the present invention is an eighty-two (82) bit identifier that is comprised of the following subfields:

- i) Originating Switch ID (14 bits) : This field represents the NCS Switch ID as defined in the Office Engineering table at each switch. The SER call record, however, contains an alpha numeric representation of the Switch ID. Thus, a switch uses the alphanumeric Switch ID as an index into a database for retrieving the corresponding NCS Switch ID.
- ii) Originating Trunk Group (14 bits) : This field represents the originating trunk group as defined in the 32/64-word call record format

described above.

iii) Originating Port Number (19 bits) : This field represents the originating port number as defined in the 32/64-word call record format described above.

iv) Timepoint 1 (32 bits) : This field represents the Timepoint 1 value as defined in the 32/64-word call record format described above.

v) Sequence Number (3 bits) : This field represents the number of calls which have occurred on the same port number with the same Timepoint 1 (second) value. The first telephone call will have a sequence number set to '0.' This value increases incrementally for each successive call which originates on the same port number with the same Timepoint 1 value.

It would be readily apparent to one skilled in the relevant art to create an NCID of a different format. Each switch records the NCID in either the 32 or 64-word call record format. Regarding the 32-word call record format, intermediate and terminating switches will record the NCID in the AuthCode field of the 32-word call record if the AuthCode field is not used to record other information. In this case, the Originating Switch ID is the NCS Switch ID, not the alphanumeric Switch ID as recorded in the SER call record. If the AuthCode is used for other information, the intermediate and terminating switches record the NCID in the 64-word call record format. In contrast, originating switches do not use the AuthCode field when storing an NCID in a 32-word call record. Originating switches record the subfields of the NCID in the corresponding separate fields of the 32-word call record. That is, the Originating Switch ID is stored as an alphanumeric Switch ID in the Switch ID field of the SER call record; the Originating Trunk Group is stored in the Originating Trunk Group field of the 32-word call record; the Originating Port Number is stored in the Originating Port field of the 32-word call record; the Timepoint 1 is stored in the Timepoint 1 field of the 32-

word call record; the Sequence Number is stored in the NCID Sequence Number field of the 32-word call record. The 32-word call record also includes an NCID Location (NCIDLOC) field to identify when the NCID is recorded in the AuthCode field of the call record. If the NCID Location field contains a '1,' then the AuthCode field contains the NCID. If the NCID Location field contains a '0,' then the NCID is stored in its separate sub-fields in the call record. Only intermediate and terminating switches set the NCID Location field to a '1' because originating switches store the NCID in the separate fields of the 32-word call record.

Regarding the 64-word call record format, the expanded call record includes a separate field, call the NCID field, to store the 82 bits of the NCID. This call record is handled the same regardless of whether an originating, intermediate, or terminating switch stores the NCID. In the 64-word call record format, the Originating Switch ID is the NCS Switch ID, not the alphanumeric Switch ID as recorded in the SER call record.

Figure **92** illustrates the control flow of the Network Call Identifier switch call processing. A call **30202** comes into a switch **30106-30110** (called the current switch for reference purposes; the current switch is the switch that is currently processing the call) at step **31104**. In step **31104**, the current switch receives the call **30202** and proceeds to step **31106**. In step **31106**, the current switch accesses a local database and gets the trunk group parameters associated with the originating trunk group of the call **30202**. After getting the parameters, the current switch proceeds to step **31108**. In step **31108**, the current switch determines if it received an NCID with the call **30202**. If the current switch did not receive an NCID with the call **30202**, the switch continues to step **31112**.

In step **31112**, the switch analyzes the originating trunk group parameters to determine the originating trunk group type. If the originating trunk group type is an InterMachine Trunk (IMT) or a release link trunk (RLT), then the

switch proceeds to step **31116**. An IMT is a trunk connecting two normal telecommunication switches, whereas a RLT is a trunk connecting an intelligent services network (ISN) platform to a normal telecommunication switch. When the current switch reaches step **31116**, the current switch  
5 knows that it is not an originating switch and that it has not received an NCID. In step **31116**, the current switch analyzes the originating trunk group parameters to determine whether it is authorized to create an NCID for the call **30202**. In step **31116**, if the current switch is not authorized to create an NCID for the call **30202**, the current switch proceeds to step  
10 **31118**. When in step **31118**, the current switch knows that it is not an originating switch, it did not receive an NCID for the call **30202**, but is not authorized to generate an NCID. Therefore, in step **31118**, the current switch writes the call record associated with the call **30202** to the local switch database and proceeds to step **31120**. In step **31120**, the current  
15 switch transports the call **30202** out through the network with its associated NCID. Step **31120** is described below in more detail.

Referring again to step **31116**, if the current switch is authorized to create an NCID for the call **30202**, the current switch proceeds to step **31114**. In  
20 step **31114**, the current switch generates a new NCID for the call **30202** before continuing to step **31136**. In step **31136**, the current switch writes the call record, including the NCID, associated with the call **30202** to the local switch database and proceeds to step **31120**. In step **31120**, the current switch transports the call **30202** out through the network with its  
25 associated NCID. Step **31120** is described below in more detail.

Referring again to step **31112**, if the current switch determines that the originating trunk group type is not an IMT or RLT, the current switch proceeds to step **31114**. When reaching step **31114**, the current switch  
30 knows that it is an originating switch and, therefore, must generate a NCID for the call **30202**. Step **31114** is described below in more detail. After generating a NCID in step **31114**, the current switch proceeds to step

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**31136** to write the call record, including the NCID, associated with the call **30202** to the local database. After writing the call record, the current switch proceeds to step **31120** to transport the call out through the network with its associated NCID. Step **31120** is also described below in more detail.

Referring again to step **31108**, if the current switch determines that it received an NCID with the call **30202**, the current switch proceeds to step **31110**. In step **31110**, the current switch processes the received NCID. In step **31110**, there are two possible results. First, the current switch may decide not to keep the received NCID thereby proceeding from step **31110** to step **31114** to generate a new NCID. Step **31110** is described below in more detail. In step **31114**, the current switch may generate a new NCID for the call **30202** before continuing to step **31136**. Step **31114** is also described below in more detail. In step **31136**, the current switch writes the call record associated with the call **30202** to the local database. The current switch then proceeds to step **31120** and transports the call **30202** out through the network with its associated NCID. Step **31120** is also described below in more detail.

Referring again to step **31110**, the current switch may decide to keep the received NCID thereby proceeding from step **31110** to step **31115**. In step **31115**, the current switch adds the received NCID to the call record associated with the call **30202**. Steps **31110** and **31115** are described below in more detail. After step **31115**, the current switch continues to step **31136** where it writes the call record associated with the call **30202** to the local database. The current switch then proceeds to step **31120** and transports the call **30202** out through the network with its associated NCID. Step **31120** is also described below in more detail.

Figure **93** illustrates the control logic for step **31110** which processes a received NCID. The current switch enters step **31202** of step **31110** when it

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determines that an NCID was received with the call **30202**. In step **31202**, the current switch analyzes the originating trunk group parameters to determine the originating trunk group type. If the originating trunk group type is an IMT or RLT, then the current switch proceeds to step **31212**.

- 5 When in step **31212**, the current switch knows that it is not an originating switch and that it received an NCID for the call **30202**. Therefore, in step **31212**, the current switch keeps the received NCID and exits step **31110**, thereby continuing to step **31115** in Figure **92**, after which the current switch will store the received NCID in the call record and transport the call.

10

Referring again to step **31202**, if the originating trunk group type is not an IMT or RLT, the current switch proceeds to step **31204**. In step **31204**, the current switch determines if the originating trunk group type is an Integrated Services User Parts Direct Access Line (ISUP DAL) or an

- 15 Integrated Services Digital Network Primary Rate Interface (ISDN PRI). ISUP is a signaling protocol which allows information to be sent from switch to switch as information parameters. An ISUP DAL is a trunk group that primarily is shared by multiple customers of the network, but can also be dedicated to a single network customer. In contrast, an ISDN PRI is a trunk
- 20 group that primarily is dedicated to a single network customer, but can also be shared by multiple network customers. A network customer is an entity that leases network resources. In step **31204**, if the current switch determines that the trunk group type is not an ISUP DAL or ISDN PRI, the current switch proceeds to step **31206**. When in step **31206**, the current
- 25 switch knows that it received an NCID that was not generated by a switch that is part of the telecommunication network or by a switch that is a customer of the network. Therefore, in step **31206**, the current switch discards the received NCID because it is an unreliable NCID. From step **31206**, the current switch exits step **31110**, thereby continuing to step
- 30 **31114** in Figure **92** where the current switch will create a new NCID and transport that NCID with the call **30202**.

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Referring back to step **31204**, if the current switch determines that the originating trunk group type is an ISUP DAL or ISDN PRI, the current switch continues to step **31208**. When in step **31208**, the current switch knows that it received an NCID from a customer trunk group. Therefore, the  
5 current switch analyzes the originating trunk group parameters to determine whether it is authorized to create a new NCID for the call **30202**.

The current switch may be authorized to create a new NCID and overwrite the NCID provided by the customer to ensure that a valid NCID corresponds to the call **30202** and is sent through the network. In step **31208**, if the  
10 current switch is not authorized to create a new NCID for the call **30202**, the current switch proceeds to step **31210**. In step **31210**, the current switch checks the validity of the received NCID, for example, the NCID length. If the received NCID is invalid, the current switch proceeds to step **31206**. In step **31206**, the current switch discards the invalid NCID. From  
15 step **31206**, the current switch exits step **31110**, thereby continuing to step **31114** in Figure **92** where the current switch will create a new NCID and transport that NCID with the call **30202**.

Referring again to step **31210**, if the current switch determines that the received NCID is valid, the current switch proceeds to step **31212**. In step  
20 **31212** the current switch keeps the received NCID and exits step **31110**, thereby continuing to step **31115** in Figure **92** where the current switch will store the received NCID in the call record and transport the call.

Figure **94A** illustrates the control logic for step **31114** which generates an  
25 NCID. The current switch enters step **31302** when an NCID must be created. In step **31302**, the current switch will calculate a sequence number. The sequence number represents the number of calls which have occurred on the same port number with the same Timepoint 1 value. The first call has a sequence number value of '0,' after which the sequence  
30 number will increase incrementally for each successive call that originates on the same port number with the same Timepoint 1 value. After creating the sequence number in step **31302**, the current switch proceeds to step



5 **31304.** In step **31304**, the current switch creates a call record for the call **30202**, including in it the call's **30202** newly created NCID. After the call record has been created, the current switch exits step **31114** and proceeds to step **31136** in Figure **92** where the current switch writes the call record to the local switch database.

10 Figure **94B** illustrates the control logic for step **31115** which adds a received NCID to the call record associated with the call **30202**. Upon entering step **31115**, the current switch enters step **31306**. When in step **31306**, the current switch knows that it has received a valid NCID from an intermediate or terminating switch, or from a customer switch. In step **31306**, the current switch determines if the AuthCode field of the 32-word call record is available for storing the NCID. If the AuthCode field is available, the current switch proceeds to step **31310**. In step **31310**, the  
15 current switch stores the NCID in the AuthCode field of the 32-word call record. The current switch must also set the NCID Location field to the value '1' which indicates that the NCID is stored in the AuthCode field. After step **31310**, the current switch exits step **31115** and continues to step **31136** in Figure **92** where the current switch writes the call record to the  
20 local switch database.

Referring again to step **31306**, if the AuthCode field is not available in the 32-word call record, the current switch proceeds to step **31308**. In step **31308**, the current switch stores the NCID in the NCID field of the 64-word  
25 call record. After step **31308**, the current switch exits step **31115** and continues to step **31136** in Figure **92** where the current switch writes the call record to the local switch database.

30 Figure **95** illustrates the control logic for step **31120** which transports the call from the current switch. There are two entry points for this control logic: steps **31402** and **31412**. Upon entering step **31402** from step **31136** on Figure **92**, the current switch knows that it has created an NCID or has

received a valid NCID. In step **31402**, the current switch accesses a local database and gets the trunk group parameters associated with the terminating trunk group for transporting the call **30202**. After getting the parameters, the current switch proceeds to step **31404**. In step **31404**, the

5 current switch determines the terminating trunk group type. If the terminating trunk is an ISUP trunk, the current switch proceeds to step **31408**. In step **31408**, the current switch analyzes the parameters associated with the ISUP trunk type to determine whether or not to deliver the NCID to the next switch. If the current switch is authorized to deliver

10 the NCID, the current switch proceeds to step **31416**. In step **31416**, the current switch transports the call to the next switch along with a SS7 initial address message (IAM). The NCID is transported as part of the generic digits parameter of the IAM. The IAM contains setup information for the next switch which prepares the next switch to accept and complete the call

15 **30202**. The format of the generic digits parameter is shown below in Table **306** :

Generic Digits Parameter :

Code: 11000001

20 Type: 0

Byte #, Bit #	Description
byte 1, bits 0-4	Type of Digits : Indicates the contents of the parameter. This field has a binary value of '11011' to indicate that the parameter contains the NCID.
byte 1, bits 5-7	Encoding Scheme : Indicates the format of the parameter contents. This field has a binary

	value of '011' to indicate that the NCID is stored in the binary format.
byte 2, bits 0-7 byte 3, bits 0-5	Originating Switch ID
byte 3, bits 6-7 byte 4, bits 0-7 byte 5, bits 0-3	Originating Trunk Group
byte 5, bits 4-7 byte 6, bits 0-7 byte 7, bits 0-6	Originating Port Number
byte 7, bit 7	Not Used
byte 8, bits 0-7 byte 9, bits 0-7 byte 10, bits 0-7 byte 11, bits 0-7	Timepoint 1
byte 12, bits 0-2	NCID Sequence Number
byte 12, bits 3-7	Not Used

Table 306

After transporting the call **30202** and the IAM, the current switch proceeds to step **31418**, thereby exiting the switch processing.

Referring again to step **31408**, if the current switch is not authorized to  
5 deliver the NCID to the next switch in an IAM message, the current switch proceeds to step **31412**. In step **31412**, the current switch transports the call **30202** to the next switch under normal procedures which consists of sending an IAM message to the next switch without the NCID recorded as part of the generic digits parameter. After transporting the call **30202**, the  
10 current switch proceeds to step **31418**, thereby exiting the switch processing.

Referring again to step **31404**, if the current switch determines that the terminating trunk is not an ISUP, the current switch proceeds to step **31406**.

15

In step **31406**, the current switch determines if the terminating trunk group is an ISDN trunk (the terminating trunk group is dedicated to one network customer). If the terminating trunk group is an ISDN, the current switch proceeds to step **31410**. In step **31410**, the current switch analyzes the  
20 parameters associated with the ISDN trunk group type to determine whether or not to deliver the NCID to the next switch. If the current switch is authorized to deliver the NCID, the current switch proceeds to step **31414**. In step **31414**, the current switch transports the call to the next switch along with a setup message. The setup message contains setup information  
25 for the next switch which prepares the next switch to accept and complete the call **30202**. The NCID is transported as part of the locking shift codeset 6 parameter of the setup message. The format of the locking shift codeset 6 parameter is shown below in Table **307** :

30 Locking Shift Codeset 6 Parameter :

Code: 11000001

Type: 0

Byte #, Bit #	Description
byte 1, bits 0-4	Type of Digits : Indicates the contents of the parameter. This field has a binary value of '11011' to indicate that the parameter contains the NCID.
byte 1, bits 5-7	Encoding Scheme : Indicates the format of the parameter contents. This field has a binary value of '011' to indicate that the NCID is stored in the binary format.
byte 2, bits 0-7 byte 3, bits 0-5	Originating Switch ID
byte 3, bits 6-7 byte 4, bits 0-7 byte 5, bits 0-3	Originating Trunk Group
byte 5, bits 4-7 byte 6, bits 0-7 byte 7, bits 0-6	Originating Port Number
byte 7, bit 7	Not Used
byte 8, bits 0-7 byte 9, bits 0-7 byte 10, bits 0-	Timepoint 1

7 byte 11, bits 0- 7	
byte 12, bits 0- 2	NCID Sequence Number
byte 12, bits 3- 7	Not Used

Table 307

- After transporting the call **30202** and the setup message, the current switch proceeds to step **31418**, thereby exiting the switch processing.
- Referring again to step **31410**, if the current switch determines that it does not have authority to deliver the NCID to the next switch in a setup message, the current switch proceeds to step **31412**. In step **31412**, the current switch transports the call **30202** to the next switch under normal procedures which consists of sending a setup message to the next switch without the NCID recorded as part of the locking shift codeset 6 parameter. After transporting the call **30202**, the current switch proceeds to step **31418**, thereby exiting the switch processing.
- Referring again to step **31412**, this step is also entered from step **31118** on Figure **92** when the current switch did not receive an NCID, is an intermediate or terminating switch, and is not authorized to create an NCID. In this case, in step **31412**, the current switch also transports the call **30202** to the next switch under normal procedures which consists of sending an IAM or setup message to the next switch without the NCID recorded as part of the parameter. After transporting the call **30202**, the current switch proceeds to step **31418**, thereby exiting the switch

processing.

A system and method for the switches of a telecommunications network to generate call records for telephone calls using a flexible and expandable record format. Upon receipt of a telephone call, a switch in the network analyzes the telephone call to determine whether the default call record is sufficiently large to store call record information pertaining to the telephone call, or whether the expanded call record must be used to store the call information pertaining to the telephone call. After determining which call record to use, the switch generates the default or expanded call record. The switch sends a billing block, comprised of completed call records, to a billing center upon filling an entire billing block.

## XXII. PRIORITIZING ACCESS/ROUTERXXII.

### 15           A.     *Prioritizing Access/Router Overview*

A prioritizing access router (PAR) is designed to combine the features of an internet access device and an Internet Protocol (IP) Router. It enables dial-up modem access to the internet by performing essential modem and PPP/SLIP to IP and the reverse IP to PPP/SLIP conversion. It also analyzes IP packet source/destination addresses and UDP or TCP ports and selects appropriate outgoing network interfaces for each packet. Lastly, it uses a priority routing technique to favor packets destined for specific network interfaces over packets destined for other network interfaces.

25

The design goal of the prioritizing access/router is to segregate real-time traffic from the rest of the best-effort data traffic on internet networks. Real-time and interactive multimedia traffic is best segregated from traffic without real-time constraints at the access point to the internet, so that greater control over quality of service can be gained. Figure 114A is a block diagram of an access/router system in accordance with a preferred

30

embodiment.

**B. Prioritizing Access/Router Process**

1. A computer dials up the PAR via a modem. The computer modem  
5 negotiates data transfer rate and modem protocol parameters with the PAR  
modem (**11410**).
2. The computer sets up a Point to Point Protocol (PPP) session with the  
PAR using the modem to modem connection over a Public Switched  
Telephone Network (PSTN) connection.
- 10 3. The computer transfers PPP packets to the PAR using the modem  
connection. The PAR modem (**11410**) transfers PPP packets to the PPP to IP  
conversion process (**11420**) via the modem to host processor interface  
(**11480**). The modem to host processor interface can be any physical  
15 interface presently available or yet to be invented. Some current examples  
are ISA, EISA, VME, SCbus, MVIP bus, Memory Channel, and TDM buses.  
There is some advantage in using a multiplexed bus such as the Time  
Division Multiplexing buses mentioned here, due to the ability to devote  
capacity for specific data flows and preserve deterministic behavior.
4. The PPP to IP conversion process (**11420**) converts PPP packets to IP  
20 packets, and transfers the resulting IP packets to the packet classifier  
(**11450**) via the process to process interface (**11485**). The process to process  
interface can be either a physical interface between dedicated processor  
hardware, or can be a software interface. Some examples of process to  
process software interfaces include function or subroutine calls, message  
25 queues, shared memory, direct memory access (DMA), and mailboxes.
5. The packet classifier (**11485**) determines if the packet belongs to any  
special prioritized group. The packet classifier keeps a table of flow  
specifications, defined by
  - destination IP Address
  - 30 source IP address
  - combined source/destination IP Address



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combined destination IP Address/UDP Port

combined destination IP Address/TCP Port

combined source IP address/UDP Port

combined source IP Address/TCP Port

5 combined source IP Address and TCP or UDP port with source IP  
address

combined destination IP Address and TCP or UDP port with source IP  
address

10 combined source IP Address and TCP or UDP port with destination IP  
address and TCP/UDP Port

The packet classifier checks its table of flow specifications against the IP  
addresses and UDP or TCP ports used in the packet. If any match is found,  
the packet is classified as belonging to a priority flow and labeled as with a  
priority tag. Resource Reservation Setup Protocol techniques may be used  
15 for the packet classifier step.

6. The packet classifier (**11450**) hands off priority tagged and non-tagged  
packets to the packet scheduler (**11460**) via the process to process interface  
(**11490**). The process to process interface (**11490**) need not be identical to  
the process to process interface (**11485**), but the same selection of  
20 techniques is available. The packet scheduler (**11460**) used a priority  
queuing technique such as Weighted Fair Queueing to help ensure that  
prioritized packets (as identified by the packet classifier) receive higher  
priority and can be placed on an outbound network interface queue ahead of  
competing best-effort traffic.

25 7. The packet scheduler (**11460**) hands off packets in prioritized order to  
any outbound network interface (**11410**, **11470**, **11471**, or **11472**) via the  
host processor to peripheral bus (**11495**). Any number of outbound  
network interfaces may be used.

8. Similar to step 3, IP packets can arrive at the PAR via non-modem  
30 interfaces (**11470**, **11471**, **11472**). Some examples of these interfaces  
include Ethernet, fast Ethernet, FDDI, ATM, and Frame Relay. These  
packets go through the same steps 5 through 7 as IP packets arriving via

the modem PPP interfaces.

9. The priority flow specifications are managed through the controller process (11430). The controller process can accept externally placed priority reservations through the external control application programming interface (11440). The controller validates priority reservations for particular flows against admission control procedures and policy procedures, and if the reservation is admitted, the flow specification is entered in the flow specification table in the packet classifier (11450) via the process to process interface (11465). The process to process interface (11465) need not be identical to the process to process interface (11485), but the same selection of techniques is available.

### XXIII. CALLBACK TELEPHONY SYSTEM

#### A. *Introduction to a Callback Telephony System in Accordance with a preferred Embodiment*

In today's telephony environment, a caller must contact an operator to initiate a conference call and/or have all parties dial a common number to connect into a conference call. This requires the cost of a human operator and the inconvenience of dialing a predefined number to be carried as overhead of each conference call. It also makes it very inefficient to schedule a conference call and assure that all parties are available to participate. It also requires a dedicated number for all the parties to access to facilitate the call

In accordance with a preferred embodiment, a callback system is facilitated by a caller accessing a display from a computer and filling out information describing the parameters of a call. Information such as the date and time the call should be initiated, billing information, and telephone numbers of parties to participate in the call could be captured. Then, based on the

information entered, a central or distributed computing facility with access to the hybrid network transmits e-mail in a note to each party required for the call copying the other parties to verify participation and calendar the event. The e-mail would include any particulars, such as the password  
5 associated with the call and time the call would be commenced. The necessary network facilities would also be reserved to assure the appropriate Quality of Service (QOS) would be available, and when the date and time requested arrived, the call is initiated by contacting each of the participants whether they be utilizing a telephone attached to a PSTN or a voice capable  
10 apparatus (such as a computer or intelligent television) attached to the hybrid network. At any time during scheduling, initiation or duration of the call, any party could request operator assistance by selecting that service from the display associated with the call. Thus, a completely automated callback system is provided for call setup and control.

15 For callers that utilize the callback system on a regular basis a custom profile is provided as an extension to the users existing profile information. The custom profile allows a user to store frequent conference call participants information. The profile contains participant's telephone  
20 numbers (which could be DDD, IDDD, IP Address or Cellular phone number), E-mail address, paging service, fax number, secretary phone number, location, time zone, working hours and other pertinent information that will be useful for initiating a call. Default profiles based on company or organization needs are also enabled and can be tailored to meet the needs of  
25 a particular user based on more global information.

Billing information would also be provided online. A user could enter a pre-arranged billing number or the ability to bill to a credit card or telephone  
30 number. If billing to a telephone number, the system treats the call like a collect or third party call to verify billing.

If profile information were predefined for a particular call scenario, then

another option would allow an immediate connection of a conference call or single call at the press of a button, much as speed dialing is performed today except that more than one caller could be joined without intervention of the calling party, Internet callers are supported and an operator can be joined as required.

### ***B. Internet-Based Callback Architecture***

The following information discusses the detailed architecture of an internet-based callback architecture in accordance with a preferred embodiment. A block diagram of the architecture is illustrated in Figure **114B** in accordance with a preferred embodiment. The callback call flow commences when a caller **11412** calls into a local internet service provider **11419** as illustrated in Figure **114B** at **11410**. The caller addresses the callback server **11414** to access the callback home page **11411** through the internet **11419**, shown as an internet cloud labeled Basic Internet Protocol Platform **11419**. At the callback server home page **11411**, the caller enters, sees and/or updates default information such as: callback Internet Protocol (IP) address, call-to phone number (or multiple phone numbers to initiate a conference call) and charge-to method at a minimum. Other information, such as one or more numbers comprising entry of a Direct Distance Dialing (DDD), International Direct Distance Dialing (IDDD) or an Internet Protocol (IP) address can be utilized to specify a phone number or internet computer with voice capability. In addition, a date and time can be prearranged for staging the callback operation. Additional information that can be captured at the callback server home page **11411** is detailed below in specific examples designed to elaborate and clarify in accordance with a preferred embodiment.

Then, at **11420**, the callback server **11414** send a message to the callback switch **11432** with the appropriate calling information, and the callback

switch **11432** initiates the callback leg as shown by step **11430** of the call through the Public Service Telephony Network (PSTN) **11435** to the destination specified by the caller whereby the callback caller answers the incoming call to **11437**. Once the caller end of the call is prepared, then the  
5 callback switch initiates call-to call leg(s) which connect the call through path **11440** through PSTN **11445** to telephone set **11446** and/or **11447**. Once all of the callers have been connected, then when the status of the call changes, an exception condition is indicated on the display if it is an IP call, or an audio indicia of the condition is transmitted to the callers if they are  
10 utilizing a standard telephony device. A change in status could be a caller hanging up or a glitch occurring in the transmission. The exception conditions are also captured for quality of service analysis.

When the call is initiated utilizing the information entered into the callback  
15 server home page **11411**, as part of the initialization of the callback session, a separate temporary webpage is created which is accessible to all members of the callback via a password selected by the initiator of the callback session. While all of the callers are being connected and throughout the duration of the telephony experience, the status of the call leg changes, and  
20 exception conditions, are indicated on the temporary created status webpage, or an audio indicia, where appropriate, of the condition is transmitted to the callers if they are utilizing a standard telephony device. Then, as callers are connected, removed, or change status, the display is updated to reflect the status of each participant's connection. In addition,  
25 as the call progresses, participants can drag and drop files, video clips or any other information which would be utilized as collaborative material during the call. Each participant would be required to move information to their personal computer before the call terminated, since the webpage is temporary and is deleted upon termination of the call. The temporary  
30 webpage is password protected to avoid unauthorized access to the information contained in the webpage.

### **C.     *Callback Service Potential***

The callback service includes support for one-to-one calling, one-to-many calling (conference calling, fax broadcast, text-to-speech message delivery, voice-to-voice message delivery, conference call reservation whereby the server sends E-mails to call-to participants with the conference call details, the server sends fax to call-to participants, or the server sends a text-to-speech message to call-to participants.

### **D.     *Internet Service Potential***

Real-time view of the status of each conference call participant, ANI and an alphanumeric representation to identify each participant entered by the initiator when a call is "reserved" can be displayed on screen as participants connect to conference. This information is captured as part of the call record set forth earlier and detailed in the appendix.

In an alternative embodiment, a conference call without callback leg is enabled. In this embodiment, a callback customer participates through a Voice Over Network (VON) application utilizing a computer with voice capability, and can initiate a video screen popup on the computer display for manual operator assistance as detailed above in the description of a video operator.

### **E.     *Internet-Based Callback Architecture***

In an internet based callback architecture as illustrated in Figure 115, the callback caller dials into a local internet service provider 11512. Then, the caller addresses the host server 11514 containing the callback home page 11510 11511. At the callback server home page 11511, the caller enters the information described earlier including a callback Internet Protocol (IP) address, call-to phone number (or multiple phone numbers to initiate a

conference call) and charge-to method at a minimum. Then, for the callback call flow to initiate the call, the callback server **11514**, where the callback server home page **11511** is located, transmits a message to the callback switch **11532** with the necessary calling information generated from the  
5 callback home page **11511**. Finally, the callback caller utilizing the internet service provider **11512** to establish a voice IP session with the initiating client **11535**. The callback switch **11511** then initiates the call-to call leg(s) routing the call **11540** out over the public service telephony network **11541** to a telephone set **11542**.

#### 10 **F. Self Regulating System**

An expert system monitors each call in accordance with a preferred embodiment. The system includes rules that define what logic to execute when an exception occurs. The rules include specialized processing based  
15 on whether the call is routed via a PSTN or the internet. In addition, the system includes a default connection to a manual operator if no other correction of the connection is available. For example, if a caller hangs up during a teleconference and other callers are still connected, an exception message is sent to each of the still connected callers informing them of the  
20 status change. Another aspect of the expert system is to ensure quality of service (QOS) and produce reports indicating both integrity and exceptions. Scheduling of resources is tied to this expert system, which regulates whether calls can be scheduled based on available or projected resources at the time of the proposed call. For example, since all calls used by this  
25 system are initiated by the callback switch (item **11432** in Figure **114B** and item **11532** in Figure **115**), if there are insufficient outgoing trunk ports during the period of time that a callback subscriber requests, then the callback subscriber is prompted to select another time or denied access to the resources for that time. This is utilized to predict when additional ports  
30 and/or resources are required.

While various embodiments have been described above, it should be understood that they have been presented by way of example only, and not limitation. Thus, the breadth and scope of a preferred embodiment should not be limited by any of the above described exemplary embodiments, but  
5 should be defined only in accordance with the following claims and their equivalents.



## APPENDIX

**Table 301 - CDR/PNR Record Format:**

Word #, Bit #	Description
Word 0, bits 0-3	Call Record Id (CRID): Identifies the record type.  0 = Default 1 = CDR 2 = SER 3 = PNR 4 = OSR 5 = POSR 6 = ECDR 7 = EPNR 8 = EOSR 9 = EPOSR 10-15 = Not Used
Word 0, bits 4-15	Call Disconnect ID (CDID): Identifies the call record. Each call record has a unique ID number. These 12 bits contain the 12 least significant bits of the CDID.
Word 1, bits 0-15 Word 2, bits 0-15	Timepoint 1 (TP1): A binary count of the number of seconds that occurred between midnight (UTC) on January 1, 1976, and the time that the incoming call was detected by the switch.
Word 3, bits 0-12	Timepoint 3 (TP3): A binary count of the number of seconds between Timepoint 1 and the time the outgoing signalling protocol was completed; that is, the number of seconds that it took for the switch to connect to the outgoing trunk.
Word 3, bits 13-15 Word 4, bits 0-9	Timepoint 6 (TP6): A binary count of the number of seconds between timepoint 1 and the time Answer Supervision was detected or received. This is the time that it took for the call to be answered by the person or audio system being called.
Word 4, bits 10-15 Word 5, bits 0-15	Timepoint 7 (TP7): A binary count of the number of seconds between timepoint 1 and the time that the originating or terminating party disconnected whichever is first.
Word 6, bits 0-15 Word 7, bits 0	Originating Port (OP): The absolute port number of the originating trunk. Originating trunk is the line on which the call came to the switch.
Word 7, bits 1-15 Word 8, bits 0-1	Terminating Port (TP): The absolute port number of the last terminating trunk seized for an outgoing call attempt. The terminating trunk is the last line on which the call is transmitted.
Word 8, bits 2-14	Originating Trunk Group (OTG): A binary number expressing the Originating Trunk Group number of the originating trunk. An originating trunk group is a group of ports coming from the same location.
Word 8, bits 15 Word 9, bits 0-11	Terminating Trunk Group (TTG): A binary number expressing the Terminating Trunk Group number of the Terminating trunk. A terminating trunk group is a group of ports going to the same location. If a call fails because no trunks are available, record the last trunk group number that was attempted.

Word #, Bit #	Description
Word 9, bits 12-15	<p>Timepoint 3 qualifier (TP3Q): Contains the outpulsed call disposition qualifier which provides the telephone number of the person making the call to the person being called. The person being called needs to have signed up for the "ANI Delivery" service and have a display device for displaying the caller's telephone number.</p> <p>0 = Default  1 = ANI/CSI was delivered  2 = DNIS was delivered  3 = ANI/CSI and DNIS were delivered  4-5 = Not Used  6 = NCT  7 = NCT, ANI/CSI was delivered  8 = NCT, DNIS was delivered  9 = NCT, ANI/CSI and DNIS was delivered  10 = NCT Tandem  11-15 = Not Used</p>
Word 10, bits 0-1	<p>Timepoint 6 qualifier (TP6Q): Contains the answer supervision qualifier indicating the way in which the telephone call was answered.</p> <p>0 = Hardware detected an Answer  1 = Software detected Voice  2 = Not Used  3* = Operator/NARS detected an Answer</p> <p>* Not Used in CDR/PNR</p>
Word 10, bits 2-7	<p>Action Code (AC): The switch provides an action code which indicates the type of destination address, or what type of telephone number was called, or an error code.</p>

Word #, Bit #	Description
	<ul style="list-style-type: none"> <li>0 = Default</li> <li>1 = 7-digit number without overflow</li> <li>2 = 7-digit number with overflow</li> <li>3 = DDD number</li> <li>4 = IDDD number</li> <li>5 = Switch generated Action Code</li> <li>6 = Incoming exclusion failure</li> <li>7 = ID code failure</li> <li>8 = Unexpected error occurs in the NCS/DAP</li> <li>9 = Misdialed number and the NCS/DAP is unable to translate the dialed number</li> <li>10 = 10-digit number without overflow</li> <li>11 = 10-digit number with overflow</li> <li>12 = National with overflow</li> <li>13 = International with overflow</li> <li>14 = ANI not found</li> <li>15 = NPA-NXXX not found</li> <li>16 = Pilot number not found</li> <li>17 = Associated partition not found</li> <li>18 = ADF format error</li> <li>19 = Switch ID not found</li> <li>20 = 800 number not found</li> <li>21 = 800 number out of band</li> <li>22 = 800 number no longer in service</li> <li>23 = Invalid ID code</li> <li>24 = Range privilege</li> <li>25 = 7-digit number not in database</li> <li>26 = 10-digit exclusion feature</li> <li>27 = 900 number not found</li> <li>28 = 900 number out of band</li> <li>29 = 900 number no longer in service</li> <li>30 = NCS network management blocked</li> <li>31 = NCS Gate Denial</li> <li>32 = FlexSTC, Overflow Not Allowed</li> <li>33 = FlexSTC, Overflow Allowed</li> <li>34 = SAC Number Not Found</li> <li>35 = SAC Number Out of Band</li> <li>36 = 700 Number Not Found</li> <li>37 = 700 Number Out of Band</li> <li>38 = ICR designated Out of Band</li> <li>39 = NCT - Reversed Call Direction</li> <li>40-49 = Not Used</li> <li>50 = Flexible Direct Termination Call without overflow</li> <li>51 = Flexible Direct Termination Call with overflow</li> <li>52 = Outbound VNet without overflow</li> <li>53 = Outbound IVNet with overflow</li> <li>54 = Global Switch Profile Not Found</li> <li>55 = ANI Index Provided by DAP</li> <li>56-62 = Not Used</li> <li>63 = International Inbound AAP</li> </ul>

Word #, Bit #	Description																		
Word 10, bits 8-11	<p>Originating Trunk Class (OTC): Indicates what type of originating trunk was accessed.</p> <p>0 = ONAL (FG-A) 1 = ONAT (FG-B, FG-C, FG-D, CAMA, LAMA) 2 = DAL, VNET CAMA, FGS-DAL) 3 = IMT (Inband or SS7) 4 = International Circuit (R1, R2, #5, #6, #7) 5 = ISDN PRI 6 = OST 7-15 = Not Used</p> <p>FG = Feature Group</p>																		
Word 10, bits 12-15	<p>Terminating Trunk Class (TTC): Indicates what type of terminating trunk was accessed.</p> <p>0 = ONAL (FG-A) 1 = ONAT (FG-B, FG-C, FG-D, CAMA, LAMA) 2 = DAL, VNET CAMA, FGS-DAL) 3 = IMT (Inband or SS7) 4 = International Circuit (R1, R2, #5, #6, #7) 5 = ISDN PRI 6 = OST 7-15 = Not Used</p> <p>FG = Feature Group</p>																		
Word 11, bits 0-7	<p>Information Digits (ID): The switch receives these digits from the originating trunk group indicating the type of telephone on which the telephone call originated, such as a home telephone, pay telephone, or prison telephone.</p> <table><tr><td></td><td>FG-B Direct, CAMA</td><td>FG-D</td><td>MCI IMT</td><td>#5</td><td>#6</td></tr><tr><td>bits 0-3:TBCD Null</td><td></td><td>X</td><td>X</td><td>TBCD Null</td><td>X</td></tr><tr><td>bits 4-7: X</td><td></td><td>X</td><td>X</td><td>X</td><td>X</td></tr></table>		FG-B Direct, CAMA	FG-D	MCI IMT	#5	#6	bits 0-3:TBCD Null		X	X	TBCD Null	X	bits 4-7: X		X	X	X	X
	FG-B Direct, CAMA	FG-D	MCI IMT	#5	#6														
bits 0-3:TBCD Null		X	X	TBCD Null	X														
bits 4-7: X		X	X	X	X														
Word 11, bits 8-15	<p>Automatic Number Identification (ANI) Index Number: The index number is obtained from the ANI Index Table for all calls except 800 calls. The ANI number is looked up to determine whether the caller is a VNet customer or not. If the caller is a VNet caller, the index number is used to look up the destination address.</p>																		

Word #, Bit #	Description
Word 12, bits 0-15 Word 13, bits 0-15 Word 14, bits 0-7	<p>Call Location ID (CLI): Represents the 10 digits from where the call came. If switch receives more than 10 digits, record them in the ECDR/EPNR. There are nine (9) types of calling locations:</p> <ol style="list-style-type: none"> <li>1. VNet CAMA DAL originations: If CSI is available, prefix the CSI with filed HNPA and HNXX information, if available, and record. Use NOCLI value of 7.</li> <li>2. FG-C originations: If ANI or CSI information is not available and the number is in the 00Y+NXX+XXXX format, record the 00Y in CLI1-3, and record the OSID/OTG in CLI4-10. Use NOCLI value of 8.</li> <li>3. Inband FG-D Originations: Record the ANI that was received starting with CLI1. Use NOCLI value of 1.</li> <li>4. SS7 FG-D Originations: Record the charge number, if available. If not available, record the calling party number. Use NOCLI value of 2 or 3.</li> <li>5. International originations: Record the country code and the national number of the calling party. Use NOCLI of 9.</li> <li>6. SS7 IMTs Originations: Record the following information in this order of importance: 1) charge number, 2) calling party number, 3) OSID/OTG from generic digits. Use NOCLI of 2, 3, or 8.</li> <li>7. SS7 Reseller Originations: The CLI field is filled with TBCD-Nulls.</li> <li>8. SS7 Private Network Originations: The CLI field is filled with TBCD-Nulls.</li> <li>9. PRI Organizations: Record the calling party number received in the ISDN setup message.</li> </ol>

Word #, Bit #	Description																																												
	<p>The format:</p> <table><tr><td></td><td>1-10 digit ANI</td><td>OSID/OTG</td><td>Incoming Int'l</td></tr><tr><td>Word 12, bits 0-3</td><td>CLI1</td><td>TBCD Null</td><td>X(CC)</td></tr><tr><td>Word 12, bits 4-7</td><td>CLI2</td><td>TBCD Null</td><td>X(CC)</td></tr><tr><td>Word 12, bits 8-11</td><td>CLI3</td><td>TBCD Null</td><td>X(CC)</td></tr><tr><td>Word 12, bits 12-15</td><td>CLI4</td><td>X(OSID)</td><td>X(NN)</td></tr><tr><td>Word 13, bits 0-3</td><td>CLI5</td><td>X(OSID)</td><td>X(NN)</td></tr><tr><td>Word 13, bits 4-7</td><td>CLI6</td><td>X(OSID)</td><td>X(NN)</td></tr><tr><td>Word 13, bits 8-11</td><td>CLI7</td><td>X(OTG)</td><td>X(NN)</td></tr><tr><td>Word 13, bits 12-15</td><td>CLI8</td><td>X(OTG)</td><td>X(NN)</td></tr><tr><td>Word 14, bits 0-3</td><td>CLI9</td><td>X(OTG)</td><td>X(NN)</td></tr><tr><td>Word 14, bits 4-7</td><td>CLI10</td><td>X(OTG)</td><td>X(NN)</td></tr></table> <p>CC = Customer Connect NN = National Number OSID = Originating Switch NSC ID (000-999) OTG = Originating Trunk Group (0000-8191)</p>		1-10 digit ANI	OSID/OTG	Incoming Int'l	Word 12, bits 0-3	CLI1	TBCD Null	X(CC)	Word 12, bits 4-7	CLI2	TBCD Null	X(CC)	Word 12, bits 8-11	CLI3	TBCD Null	X(CC)	Word 12, bits 12-15	CLI4	X(OSID)	X(NN)	Word 13, bits 0-3	CLI5	X(OSID)	X(NN)	Word 13, bits 4-7	CLI6	X(OSID)	X(NN)	Word 13, bits 8-11	CLI7	X(OTG)	X(NN)	Word 13, bits 12-15	CLI8	X(OTG)	X(NN)	Word 14, bits 0-3	CLI9	X(OTG)	X(NN)	Word 14, bits 4-7	CLI10	X(OTG)	X(NN)
	1-10 digit ANI	OSID/OTG	Incoming Int'l																																										
Word 12, bits 0-3	CLI1	TBCD Null	X(CC)																																										
Word 12, bits 4-7	CLI2	TBCD Null	X(CC)																																										
Word 12, bits 8-11	CLI3	TBCD Null	X(CC)																																										
Word 12, bits 12-15	CLI4	X(OSID)	X(NN)																																										
Word 13, bits 0-3	CLI5	X(OSID)	X(NN)																																										
Word 13, bits 4-7	CLI6	X(OSID)	X(NN)																																										
Word 13, bits 8-11	CLI7	X(OTG)	X(NN)																																										
Word 13, bits 12-15	CLI8	X(OTG)	X(NN)																																										
Word 14, bits 0-3	CLI9	X(OTG)	X(NN)																																										
Word 14, bits 4-7	CLI10	X(OTG)	X(NN)																																										
Word 14, bits 8-15 Word 15, bits 0-15 Word 16, bits 0-15 Word 17, bits 0-15 Word 18, bits 0-15 Word 19, bits 0-15	<p>Authorization Codes: Represents 22 digits of who gets billed for the call which includes one or more of the following and/or an optional Supplementary Code:</p> <p>1. Authorization Code - Contains the authorization code digits. AUTH1-AUTH5 records the dialed or filed authorization codes, afterwhich is recorded an optional variable 1-4 digit security code, SEC1-SEC4, comprised of TBCD digits 0-9 and A-D. After the last digit, record a TBCD-Null, afterwhich record any supplementary code digits, SUPP1-SUPP12. Record TBCD-Null in any unused byte. Authorization Code format:</p>																																												

Word #, Bit #	Description				
		5 digit Auth Code	6 digit Auth Code	7 digit Auth Code	
	Word 14, bits 8-11	A1	AUTH1	AUTH1	AUTH1
	Word 14, bits 12-15	A2	AUTH2	AUTH2	AUTH2
	Word 15, bits 0-3	A3	AUTH3	AUTH3	AUTH3
	Word 15, bits 4-7	A4	AUTH4	AUTH4	AUTH4
	Word 15, bits 8-11	A5	AUTH5	AUTH5	AUTH5
	Word 15, bits 12-15	A6	SEC1	AUTH6	AUTH6
	Word 16, bits 0-3	A7	SEC2	SEC1	AUTH7
	Word 16, bits 4-7	A8	SEC3	SEC2	SEC1
	Word 16, bits 8-11	A9	SEC4	SEC3	SEC2
	Word 16, bits 12-15	A10	TBCD-Null	SEC4	SEC3
	Word 17, bits 0-3	A11	SUPP1	TBCD-Null	SEC4
	Word 17, bits 4-7	A12	SUPP2	SUPP1	TBCD-Null
	Word 17, bits 8-11	A13	SUPP3	SUPP2	SUPP1
	Word 17, bits 12-15	A14	SUPP4	SUPP3	SUPP2
	Word 18, bits 0-3	A15	SUPP5	SUPP4	SUPP3
	Word 18, bits 4-7	A16	SUPP6	SUPP5	SUPP4
	Word 18, bits 8-11	A17	SUPP7	SUPP6	SUPP5
	Word 18, bits 12-15	A18	SUPP8	SUPP7	SUPP6
	Word 19, bits 0-3	A19	SUPP9	SUPP8	SUPP7
	Word 19, bits 4-7	A20	SUPP10	SUPP9	SUPP8
	Word 19, bits 8-11	A21	SUPP11	SUPP10	SUPP9
	Word 19, bits 12-15	A22	SUPP12	SUPP11	SUPP10

Word #, Bit #	Description		
	<p>2. Calling Station ID (CSI) - Contains the digits of the calling station identifier. The CSI digits will be recorded starting at A1. A TBCD-Null is recorded after the last CSI digit, followed by Supplemental Code digits. Unused bytes contain a TBCD-Null.</p> <p>Calling Station ID format:</p>		
		7 digit CSI	10 digit CSI
Word 14, bits 8-11	A1	X	X
Word 14, bits 12-15	A2	X	X
Word 15, bits 0-3	A3	X	X
Word 15, bits 4-7	A4	X	X
Word 15, bits 8-11	A5	X	X
Word 15, bits 12-15	A6	X	X
Word 16, bits 0-3	A7	X	X
Word 16, bits 4-7	A8	TBCD-Null	X
Word 16, bits 8-11	A9	SUPP1	X
Word 16, bits 12-15	A10	SUPP2	X
Word 17, bits 0-3	A11	SUPP3	TBCD-Null
Word 17, bits 4-7	A12	SUPP4	SUPP1
Word 17, bits 8-11	A13	SUPP5	SUPP2
Word 17, bits 12-15	A14	SUPP6	SUPP3
Word 18, bits 0-3	A15	SUPP7	SUPP4
Word 18, bits 4-7	A16	SUPP8	SUPP5
Word 18, bits 8-11	A17	SUPP9	SUPP6
Word 18, bits 12-15	A18	SUPP10	SUPP7
Word 19, bits 0-3	A19	SUPP11	SUPP8
Word 19, bits 4-7	A20	SUPP12	SUPP9
Word 19, bits 4-11	A21	SUPP11	SUPP10
Word 19, bits 12-15	A22	SUPP12	SUPP11



Word #, Bit #	Description
	3. Supplementary Codes - Supplemental Codes are recorded starting in A1. Unused bytes contain TBCD-Null. Supplementary Code format:
	800/900 VNet Supp. Codes
Word 14, bits 8-11	A1 SUPP1
Word 14, bits 12-15	A2 SUPP2
Word 15, bits 0-3	A3 SUPP3
Word 15, bits 4-7	A4 SUPP4
Word 15, bits 8-11	A5 SUPP5
Word 15, bits 12-15	A6 SUPP6
Word 16, bits 0-3	A7 SUPP7
Word 16, bits 4-7	A8 SUPP8
Word 16, bits 8-11	A9 SUPP9
Word 16, bits 12-15	A10 SUPP10
Word 17, bits 0-3	A11 SUPP11
Word 17, bits 4-7	A12 SUPP12
Word 17, bits 8-11	A13 SUPP13
Word 17, bits 12-15	A14 SUPP14
Word 18, bits 0-3	A15 SUPP15
Word 18, bits 4-7	A16 SUPP16
Word 18, bits 8-11	A17 SUPP17
Word 18, bits 12-15	A18 SUPP18
Word 19, bits 0-3	A19 SUPP19
Word 19, bits 4-7	A20 SUPP20
Word 19, bits 8-11	A21 SUPP21
Word 19, bits 12-15	A22 SUPP22

Word #, Bit #	Description
	<p>4. VNet Remote Access - If the caller accesses VNet services through the Remote Access Service, the access number is recorded starting at A1. A TBCD-Null is recorded after the last digit followed by any Supplemental Codes. Unused bytes contain TBCD-Null. VNet Remote Access format:</p>
Word 14, bits 8-11	A1 X
Word 14, bits 12-15	A2 X
Word 15, bits 0-3	A3 X
Word 15, bits 4-7	A4 X
Word 15, bits 8-11	A5 X
Word 15, bits 12-15	A6 X
Word 16, bits 0-3	A7 X
Word 16, bits 4-7	A8 X
Word 16, bits 8-11	A9 X
Word 16, bits 12-15	A10 X
Word 17, bits 0-3	A11 TBCD-Null
Word 17, bits 4-7	A12 SUPP1
Word 17, bits 8-11	A13 SUPP2
Word 17, bits 12-15	A14 SUPP3
Word 15, bits 0-3	A15 SUPP4
Word 18, bits 4-7	A16 SUPP5
Word 18, bits 8-11	A17 SUPP6
Word 18, bits 12-15	A18 SUPP7
Word 19, bits 0-3	A19 SUPP8
Word 19, bits 4-7	A20 SUPP9
Word 19, bits 8-11	A21 SUPP10
Word 19, bits 12-15	A22 SUPP11

Word #, Bit #	Description
	<p>5. Calling Party Number - The calling party number is recorded for SS7 FGD call originations received with a charge number and a calling party number. Record the SS7 calling party number in A1-10. A TBCD-Null is recorded after the last digit, followed by supplementary codes. Unused bytes contain TBCD-Null. Calling party number format:</p>
Word 14, bits 8-11	A1 N
Word 14, bits 12-15	A2 X
Word 15, bits 0-3	A3 X
Word 15, bits 4-7	A4 N
Word 15, bits 8-11	A5 X
Word 15, bits 12-15	A6 X
Word 16, bits 0-3	A7 N
Word 16, bits 4-7	A8 X
Word 16, bits 8-11	A9 X
Word 16, bits 12-15	A10 X
Word 17, bits 0-3	A11 TBCD-Null
Word 17, bits 4-7	A12 SUPP1
Word 17, bits 8-11	A13 SUPP2
Word 17, bits 12-15	A14 SUPP3
Word 18, bits 0-3	A15 SUPP4
Word 18, bits 4-7	A16 SUPP5
Word 18, bits 8-11	A17 SUPP6
Word 18, bits 12-15	A18 SUPP7
Word 19, bits 0-3	A19 SUPP8
Word 19, bits 4-7	A20 SUPP9
Word 19, bits 8-11	A21 SUPP10
Word 19, bits 12-15	A22 SUPP11

Word #, Bit #	Description
	6. Credit Card Number - Record the commercial credit card or presubscribed credit card number starting in A1. The PIN digits of a valid presubscribed credit card number are masked out by writing TBCD-A over the 4 PIN digits. A TBCD-Null is recorded after the last digit, followed by supplementary codes. Unused bytes contain TBCD-Null. Credit card number format:
Word 14, bits 8-11	A1 X
Word 14, bits 12-15	A2 X
Word 15, bits 0-3	A3 X
Word 15, bits 4-7	A4 X
Word 15, bits 8-11	A5 X
Word 15, bits 12-15	A6 X
Word 16, bits 0-3	A7 X
Word 16, bits 4-7	A8 X
Word 16, bits 8-11	A9 X
Word 16, bits 12-15	A10 X
Word 17, bits 0-3	A11 X
Word 17, bits 4-7	A12 X
Word 17, bits 8-11	A13 X
Word 17, bits 12-15	A14 X
Word 18, bits 0-3	A15 X
Word 18, bits 4-7	A16 X
Word 18, bits 8-11	A17 X
Word 18, bits 12-15	A18 X
Word 19, bits 0-3	A9 X
Word 19, bits 4-7	A20 TBCD-Null
Word 19, bits 8-11	A21 SUPP1
Word 19, bits 12-15	A22 SUPP2

Word #, Bit #	Description
	<p>7. 14 Digit MCI/VNet Cards - The 14 digit calling card/VNet card number is recorded starting in A1 with the last 4 PIN digits masked out by writing TBCD-A for those digits. A TBCD-Null is written after the last digit, followed by supplemental codes. Unused bytes contain TBCD-Null. Calling card/VNet card format:</p>
Word 14, bits 8-11	A1 X
Word 14, bits 12-15	A2 X
Word 15, bits 0-3	A3 X
Word 15, bits 4-7	A4 X
Word 15, bits 8-11	A5 X
Word 15, bits 12-15	A6 X
Word 16, bits 0-3	A7 X
Word 16, bits 4-7	A8 X
Word 16, bits 8-11	A9 X
Word 16, bits 12-15	A10 X
Word 17, bits 0-3	A11 TBCD-A
Word 17, bits 4-7	A12 TBCD-A
Word 17, bits 8-11	A13 TBCD-A
Word 17, bits 12-15	A14 TBCD-A
Word 18, bits 0-3	A15 TBCD-Null
Word 18, bits 4-7	A16 SUPP1
Word 18, bits 8-11	A17 SUPP2
Word 18, bits 12-15	A18 SUPP3
Word 19, bits 0-3	A19 SUPP4
Word 19, bits 4-7	A20 SUPP5
Word 19, bits 8-11	A21 SUPP6
Word 19, bits 12-15	A22 SUPP7

Word #, Bit #	Description
	<p>8. Telecommunications/PTT Cards - The 23 digits, or less, of the telecommunications card is recorded starting in A1. A TBCD-Null is recorded after the last digit, followed by supplemental codes. Unused bytes contain TBCD-Null. Telecommunications card format:</p>
	<p>Word 14, bits 8-11      A1      X</p> <p>Word 14, bits 12-15    A2      X</p> <p>Word 15, bits 0-3      A3      X</p> <p>Word 15, bits 4-7      A4      X</p> <p>Word 15, bits 8-11     A5      X</p> <p>Word 15, bits 12-15    A6      X</p> <p>Word 16, bits 0-3      A7      X</p> <p>Word 16, bits 4-7      A8      X</p> <p>Word 16, bits 8-11     A9      X</p> <p>Word 16, bits 12-15    A10     X</p> <p>Word 17, bits 0-3      A11     X</p> <p>Word 17, bits 4-7      A12     X</p> <p>Word 17, bits 8-11     A13     X</p> <p>Word 17, bits 12-15    A14     X</p> <p>Word 18, bits 0-3      A15     X</p> <p>Word 18, bits 4-7      A16     X</p> <p>Word 19, bits 8-11     A17     X</p> <p>Word 19, bits 12-15    A18     X</p> <p>Word 19, bits 0-3      A19     X</p> <p>Word 19, bits 4-7      A20     X</p> <p>Word 19, bits 8-11     A21     X</p> <p>Word 19, bits 12-15    A22     X</p>

Word #, Bit #	Description
	9. OSID and OTG - For international inbound VNet or SAC calls, the OSID and OTG are recorded as received from the SS7 Generic Digits parameter. After the parameters are recorded, the remaining bytes contain TBCD-Null. OSID and OTG format:
Word 14, bits 8-11	A1 X (OSID)
Word 14, bits 12-15	A2 X (OSID)
Word 15, bits 0-3	A3 X (OSID)
Word 15, bits 4-7	A4 X (OTG)
Word 15, bits 8-11	A5 X (OTG)
Word 15, bits 12-15	A6 X (OTG)
Word 16, bits 0-3	A7 X (OTG)
Word 16, bits 4-7	A8 TBCD-Null
Word 16, bits 8-11	A9 TBCD-Null
Word 16, bits 12-15	A10 TBCD-Null
Word 17, bits 0-3	A11 TBCD-Null
Word 17, bits 4-7	A12 TBCD-Null
Word 17, bits 8-11	A13 TBCD-Null
Word 17, bits 12-15	A14 TBCD-Null
Word 18, bits 0-3	A15 TBCD-Null
Word 18, bits 4-7	A16 TBCD-Null
Word 18, bits 8-11	A17 TBCD-Null
Word 18, bits 12-15	A18 TBCD-Null
Word 19, bits 0-3	A19 TBCD-Null
Word 19, bits 4-7	A20 TBCD-Null
Word 19, bits 8-11	A21 TBCD-Null
Word 19, bits 12-15	A22 TBCD-Null
	OSID = Originating Switch ID
	OTG = Originating Trunk Group

Word #, Bit #	Description
	<p>10. Business Group ID - For some SS7 trunk groups, a business group ID is received in a SS7 parameter and is recorded in A1-A6. After the last digit, a TBCD-Null is recorded followed by any supplemental codes. Unused bytes contain TBCD-Null.</p> <p>Word 14, bits 8-11      A1      X  Word 14, bits 12-15    A2      X  Word 15, bits 0-3      A3      X  Word 15, bits 4-7      A4      X  Word 15, bits 8-11    A5      X  Word 15, bits 12-15   A6      X  Word 16, bits 0-3      A7      TBCD-Null  Word 16, bits 4-7      A8      SUPP1  Word 16, bits 8-11    A9      SUPP2  Word 16, bits 12-15   A10    SUPP3  Word 17, bits 0-3      A11    SUPP4  Word 17, bits 4-7      A12    SUPP5  Word 17, bits 8-11    A13    SUPP6  Word 17, bits 12-15   A14    SUPP7  Word 18, bits 0-3      A15    SUPP8  Word 18, bits 4-7      A16    SUPP9  Word 18, bits 8-11    A17    SUPP10  Word 18, bits 12-15   A18    SUPP11  Word 19, bits 0-3      A19    SUPP12  Word 19, bits 4-7      A20    SUPP13  Word 19, bits 8-11    A21    SUPP14  Word 19, bits 12-15   A22    SUPP15</p>
	<p>11. Network Information - For some SS7 trunk groups, a network information ID is received in a SS7 parameter and is recorded in A1-A4. After the last digit, a TBCD-Null is recorded followed by any supplemental codes. Unused bytes contain TBCD-Null.</p> <p>Word 14, bits 8-11    A1      N  Word 14, bits 12-15   A2      X  Word 15, bits 0-3      A3      X  Word 15, bits 4-7      A4      N  Word 15, bits 8-11    A5      TBCD-Null  Word 15, bits 12-15   A6      SUPP1  Word 16, bits 0-3      A7      SUPP2  Word 16, bits 4-7      A8      SUPP3  Word 16, bits 8-11    A9      SUPP4  Word 16, bits 12-15   A10    SUPP5  Word 17, bits 0-3      A11    SUPP6  Word 17, bits 4-7      A12    SUPP7  Word 17, bits 8-11    A13    SUPP8  Word 17, bits 12-15   A14    SUPP9  Word 18, bits 0-3      A15    SUPP10  Word 18, bits 4-7      A16    SUPP11  Word 18, bits 8-11    A17    SUPP12  Word 18, bits 12-1:5   A18    SUPP13  Word 19, bits 0-3      A19    SUPP14  Word 19, bits 4-7      A20    SUPP15  Word 19, bits 8-11    A21    SUPP16  Word 19, bits 12-1:5   A22    SUPP17</p>



Word #, Bit #	Description																																																																																																												
	<p>12. Network Call Identifier (NCID) - If the NCID is recorded in the "A" field, it will be recorded in binary beginning with A1. The Entry Code field will be indicative of the call processing associated with the particular call or "0". If the NCID is recorded in the NCID field of a 64 word call record, the Entry Code will also be indicative of the call processing associated with the particular call or "0". The NCID is comprised of the following:</p> <p>Originating Switch ID Originating Trunk Group Originating Port Number Timepoint One NCID Sequence Number</p>																																																																																																												
Word 20, bits 0-15 Word 21, bits 0-15 Word 22, bits 0-15 Word 23, bits 0-15 Word 24, bits 0-3	<p>Destination Address: This is the seventeen digits of the destination address which is the number being called. If more than 17 digits is required, use ECDR/EPNR format. Unused bytes contain TBCD-Null.</p> <table><thead><tr><th></th><th></th><th>7-digit</th><th>10-digit</th><th>DDD</th><th>IDDD</th></tr></thead><tbody><tr><td>Word 20, bits 0-3</td><td>D1</td><td>N</td><td>N</td><td>N</td><td>CC</td></tr><tr><td>Word 20, bits 4-7</td><td>D2</td><td>X</td><td>X</td><td>X</td><td>CC</td></tr><tr><td>Word 20, bits 8-11</td><td>D3</td><td>X</td><td>X</td><td>X</td><td>CC</td></tr><tr><td>Word 20, bits 12-15</td><td>D4</td><td>X</td><td>N</td><td>N</td><td>NN</td></tr><tr><td>Word 21, bits 0-3</td><td>D5</td><td>X</td><td>X</td><td>X</td><td>NN</td></tr><tr><td>Word 21, bits 4-7</td><td>D6</td><td>X</td><td>X</td><td>X</td><td>NN</td></tr><tr><td>Word 21, bits 8-11</td><td>D7</td><td>X</td><td>X</td><td>X</td><td>NN</td></tr><tr><td>Word 21, bits 12-15</td><td>D8</td><td>X(TSID)</td><td>X</td><td>NN</td><td></td></tr><tr><td>Word 22, bits 0-3</td><td>D9</td><td>X(TSID)</td><td>X</td><td>NN</td><td></td></tr><tr><td>Word 22, bits 4-7</td><td>D10</td><td>X(TSID)</td><td>X</td><td>NN</td><td></td></tr><tr><td>Word 22, bits 8-11</td><td>D11</td><td>X(TTG)</td><td>X(TSID)</td><td>T-Null</td><td>NN</td></tr><tr><td>Word 22, bits 12-15</td><td>D12</td><td>X(TTG)</td><td>X(TSID)</td><td>T-Null</td><td>NN</td></tr><tr><td>Word 23, bits 0-3</td><td>D13</td><td>X(TTG)</td><td>X(TSID)</td><td>T-Null</td><td>NN</td></tr><tr><td>Word 23, bits 4-7</td><td>D14</td><td>X(TTG)</td><td>X(TSID)</td><td>T-Null</td><td>NN</td></tr><tr><td>Word 23, bits 8-11</td><td>D15</td><td>T-Null</td><td>X(TTG)</td><td>T-Null</td><td>NN</td></tr><tr><td>Word 23, bits 12-15</td><td>D16</td><td>T-Null</td><td>X(TTG)</td><td>T-Null</td><td>T-Null</td></tr><tr><td>Word 24, bits 0-3</td><td>D17</td><td>T-Null</td><td>X(TTG)</td><td>T-Null</td><td>T-Null</td></tr></tbody></table> <p>CC = Customer Carrier NN = National Number TSID = Terminating Switch ID TTG = Terminating Trunk Group</p>			7-digit	10-digit	DDD	IDDD	Word 20, bits 0-3	D1	N	N	N	CC	Word 20, bits 4-7	D2	X	X	X	CC	Word 20, bits 8-11	D3	X	X	X	CC	Word 20, bits 12-15	D4	X	N	N	NN	Word 21, bits 0-3	D5	X	X	X	NN	Word 21, bits 4-7	D6	X	X	X	NN	Word 21, bits 8-11	D7	X	X	X	NN	Word 21, bits 12-15	D8	X(TSID)	X	NN		Word 22, bits 0-3	D9	X(TSID)	X	NN		Word 22, bits 4-7	D10	X(TSID)	X	NN		Word 22, bits 8-11	D11	X(TTG)	X(TSID)	T-Null	NN	Word 22, bits 12-15	D12	X(TTG)	X(TSID)	T-Null	NN	Word 23, bits 0-3	D13	X(TTG)	X(TSID)	T-Null	NN	Word 23, bits 4-7	D14	X(TTG)	X(TSID)	T-Null	NN	Word 23, bits 8-11	D15	T-Null	X(TTG)	T-Null	NN	Word 23, bits 12-15	D16	T-Null	X(TTG)	T-Null	T-Null	Word 24, bits 0-3	D17	T-Null	X(TTG)	T-Null	T-Null
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Word #, Bit #	Description																																																							
Word 24, bits 4-15 Word 25, bits 0-15 Word 26, bits 0-11	<p>Pretranslated Digits: This represents the digits as dialed by the caller which may or may not be the Destination Address. The pretranslated digits are only recorded if a translation of the number occurs. If the dialed number is the destination number, and is not translated to another number, this field contains TBCD-Nulls. If there are more than 10 digits, use the ECDR/EPNR format.</p> <table><thead><tr><th></th><th>10 digit VNet, SAC DNIS, or Hotline</th><th>00Y SAC Code</th><th>7 digit VNet or Hotline</th><th>IDDD 10 digit (example)</th></tr></thead><tbody><tr><td>Word 24, bits 4-7</td><td>PTD1</td><td>N</td><td>0</td><td>N</td></tr><tr><td>Word 24, bits 8-11</td><td>PTD2</td><td>X</td><td>0</td><td>N</td></tr><tr><td>Word 24, bits 12-15</td><td>PTD3</td><td>X</td><td>Y</td><td>N</td></tr><tr><td>Word 25, bits 0-3</td><td>PTD4</td><td>N</td><td>N</td><td>N</td></tr><tr><td>Word 25, bits 4-7</td><td>PTD5</td><td>X</td><td>X</td><td>N</td></tr><tr><td>Word 25, bits 8-11</td><td>PTD6</td><td>X</td><td>X</td><td>N</td></tr><tr><td>Word 25, bits 12-15</td><td>PTD7</td><td>X</td><td>X</td><td>N</td></tr><tr><td>Word 26, bits 0-3</td><td>PTD8</td><td>X</td><td>X</td><td>TBDC-Null</td></tr><tr><td>Word 26, bits 4-7</td><td>PTD9</td><td>X</td><td>X</td><td>TBDC-Null</td></tr><tr><td>Word 26, bits 8-11</td><td>PTD10</td><td>X</td><td>X</td><td>TBDC-Null</td></tr></tbody></table>		10 digit VNet, SAC DNIS, or Hotline	00Y SAC Code	7 digit VNet or Hotline	IDDD 10 digit (example)	Word 24, bits 4-7	PTD1	N	0	N	Word 24, bits 8-11	PTD2	X	0	N	Word 24, bits 12-15	PTD3	X	Y	N	Word 25, bits 0-3	PTD4	N	N	N	Word 25, bits 4-7	PTD5	X	X	N	Word 25, bits 8-11	PTD6	X	X	N	Word 25, bits 12-15	PTD7	X	X	N	Word 26, bits 0-3	PTD8	X	X	TBDC-Null	Word 26, bits 4-7	PTD9	X	X	TBDC-Null	Word 26, bits 8-11	PTD10	X	X	TBDC-Null
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Word 26, bits 12-15	Not Used.																																																							
Word 27, bits 0-3	<p>Feature Code (FC): The switch determines a feature code for the call which indicates whether a specific type of data line is required for the call such as a higher quality line for facsimile transmissions.</p> <p>0 = Default 1 = FAX 2 = NARS 3 = Data Call 4 = Switched DS1 (HSCS) 5 = Switched DS3 (HSCS) 6-8 = Not Used 9 = NX64 10 = Offnet Routing 11 = AAP Call (Used in Gateway Toll Ticket Conversion) 12 = Card Gate Denial 13 = Forum Dial In audio/video conference 14 = Concert Freephone 15 = Not Used</p>																																																							
Word 27, bits 4-7	<p>Terminating Network Code (TNC): Indicates the terminating facilities to be used for the remainder of the path of the call. For example, an indicator for no satellite transmission.</p> <p>0 = Default 1 = No Routing Restrictions 2 = Avoid Satellite 3 = Route via DS1 4 = Route via DS1 and avoid satellite 5 = Route via Protected Facilities Required 6 = Route via Protected Facilities Preferred 7-15 = Not Used</p>																																																							

Word #, Bit #	Description
Word 27, bits 8-11	<p>Network Access Type (NAT): Indicates which type of network access was used as defined at the originating switch on the network; that is, how the caller gained access to the network. The types of access are:</p> <p>0 = Default  1 = 800 call  2 = Credit Card Access  3 = Operator Assistance Access  4 = VNET Remote Access  5 = BPP Access  6 = FGD Cut-Through Access  7-15 = Not Used</p>
Word 27, bits 12-15	<p>Timepoint 7 Qualifier (TP7Q): Contains the call's first disconnect qualifier, that is, how the call was terminated. The types of disconnection are:</p> <p>0 = Calling party disconnects  1 = Called party disconnects  2 = Calling party reorigination  3 = Switch initiated (ex. switch error cut off the call)  4 = All Routes Busy  5 = Disconnected due to a long ring; ring timer exceeded  6 = Call disconnected due to network invoked transfer  7 = Feature/Service Interaction  8-15 = Not Used</p>
Word 28, bits 0-6	<p>Entry Code (EC): Indicates the type of call processing that took place and what type of information is recorded in the Authorization Code field. If more than one entry code is received, record the last one. The following codes are valid:</p>

Word #, Bit #	Description
	<p> 0 = Default  1 = Person-to-Person (P-P)  2 = Station-to-Station (S-S)  3 = Third Party Billing (3rd party number recorded)  4 = P-P collect (bill to called party)  5 = S-S collect (bill to called party)  6 = MCI card or VNet card (S-S)  7 = BOC inward dialing without call completion  8 = general assistance  9 = BOC/LEC card  10 = Presubscribed credit card  11 = PTT card  12 = Directory Assistance  13 = Commercial Credit Card  14 = BOC inward dialing with call completion  15 = MCI card or VNet card (P-P)  16-19 = Not Used  20 = ANI validation (screened pass/fail)  21 = Auth Validation (filed or dialed)  22 = Not Used  23 = 700 Service Access Code (overrides #20)  24 = 500, 800 Service Access Code (overrides #20)  25 = 900 Service Access Code (overrides #20)  26-28 = Not Used  29 = Operator Release Timer Expired  30 = EVS/NARS - Disconnect message referral (DMR) without referral  31 = EVS/NARS - DMR with referral to MCI number  32 = EVS/NARS - DMR with referral to non-MCI number  33 = EVS/NARS - DMR with referral and call extension (CE) to MCI number  34 = EVS/NARS - DMR with referral and CE to non-MCI number  35 = EVS/NARS - Customized Message Announcement (CMA) with CE </p>

Word #, Bit #	Description
	<p>36 = EVS/NARS - CMA without CE  37 = EVS/NARS - Enhanced Call Routing (ECR)  38-41 = EVS/NARS - Reserved  42-47 = Not Used  48 = GETS card  49 = Not Used  50 = Billed to international number  51 = Calling station ID information recorded  52 = Supplemental code only recorded  53 = VNet remote access number recorded  54 = SS7 calling party number recorded  55 = OSID and OTG recorded  56 = DNIS recorded  57 = Business group ID recorded  58 = Network information recorded  59 = BG + Null + OSID/OTG  60 = Card Number + Null + OSID/OTG  61 = VNet RA + Null + OSID/OTG  62 = VNet RA + Null + OSID/OTG  63 = Network Call Transfer (NCT)  64-79 = Reserved  80-89 = Reserved  90-99 = Reserved  100 = 18C It's Me PIN S/S  101 = 18C It's Me Global S/S  102 = 18C It's Me ANI S/S  103 = 18C It's Me NPA S/S  104 = 18C It's Me Messenger S/S  105 = 18C It's Me Messenger PIN S/S  106 = 18C It's Me Messenger Global S/S  107 = 18C BOC Card S/S  108 = 18C MCI Card S/S  109 = Aos Messenger S/S  110 = International Messenger S/S  111 = International Speed Dial  112-127 = Not Used</p>
Word 28, bits 7-9	<p>Prefix Digits (PD): Represents the prefix digits of the called number. These digits tell the switch how to process the call.</p> <p>0 = No prefix digits received  1 = 0- (operator assisted)  2 = 0+ (domestic CDOS)  3 = 01 + (international CDOS)  4 = 011 +IDDD  5 = 1+DDD  6 = 0+operator assisted, subscriber address  7 = *XX where XX = 0-9, Star Card</p>

Word #, Bit #	Description
Word 28, bits 10-12	<p>NDID (NCS/DAP ID): Indicates whether the switch processed the call or if one of the databases, such as NCS/DAP, was queried for information for services, including but not limited to, VNET, Calling Card, 800, and 900 calls. The NDID further indicates the ID of the NCS/DAP that was involved in the last transaction attempt.</p> <p>0 = Switch call processing  1 = NCS/DAP 1  2 = NCS/DAP 2  3 = NCS/DAP 3  4-5 = Not Used  6 = Received from operator platform via RLT  7 = TCAP to NCS/DAP</p>
Word 28, bits 13-15	<p>Division ID (DIVID): Contains the division ID for credit card calls, including the telecommunication system's card. The DIVID is received from the NCS/DAP for the card number validation. If no information is received by the switch, record the default value of '0.'</p> <p>0 = No division ID specified  1 = Division ID1  2 = Division ID2  3 = Division ID3  4 = Division ID4  5 = Division ID5  6 = Division ID6  7 = Division ID7</p>
Word 29, bit 0	Distant Overflow (DO): When set to 1 in the originating switch's call record, indicates that a direct termination overflow (DTO) transaction was attempted at an intermediate or terminating switch in order to get the final destination address digits for this call.
Word 29, bit 1	Not Used.
Word 29, bit 2	<p>Customer Connect (CC): Indicates whether to use timepoint 6 or timepoint 3 to calculate the call duration.</p> <p>0 = Use Time Point 6, *F to calculate the call duration  1 = Use Time Point 3, *C to calculate the call duration</p>
Word 29, bit 3	Inter-Network (IN): Indicates whether or not a call is originating from one customer/network and is terminating to a different customer/network. The default setting = 0; bit set to 1 if a business group or Netinfo parameter is received from the NCS/DAP.
Word 29, bit 4	Not Used.
Word 29, bit 5	SAC Bit (SC): This bit is used for the Flexible SAC feature. This bit will be set to "1" whenever the received number which is collected during the address digit collection phase, is identified as a SAC number in the FlexSac Index associated with the originating trunk group. This bit will be set to "0" in all other cases.

Word #, Bit #	Description
Word 29, bit 6	Call Direction (CD): Indicates whether the call originated in the domestic or international network. 0 = Call origination occurred in the Domestic Network 1 = Call origination occurred in the International Network
Word 29, bit 7	Destination (DE): Indicates when a call is expected to terminate to an international destination 0 = Default, NANP, Domestic VNet, or any other calls which are not expected to terminate to an international destination 1 = Calls expected to terminate to an international destination
Word 29, bit 8	Dedicated Termination (DT): Indicates that a 10-digit shared network number was completed to a dedicated destination. If the terminating trunk class (TTC) in the call record is equal to 3 or 7, then it is considered to be a direct termination trunk.
Word 29, bits 9-10	Not Used.
Word 29, bit 11	Satellite (SA): Indicates that a satellite circuit was involved in the call. The default setting is 0; bit set to 1 indicates that a satellite was involved in the call. The bit is set when the incoming trunk group is classmarked as satellite equipped, when the SAT digit on an incoming inband IMT call shows that a satellite circuit is involved in the connection, or when the SS7 Nature of Connection parameter indicates that a satellite trunk was previously used. This is used for trouble-shooting purposes, and not for billing.
Word 29, bits 12-15	Nature Of Calling Location ID (NOCLI): A binary value that identifies what data is recorded in the Call Location ID. The Calling Location ID field will contain the information that is referenced in the NOCLI.  0 = Not Used 1 = ANI from Inbound trunk 2 = SS7 charge number 3 = SS7 calling party number 4 = original called number 5 = Pseudo ANI created at this switch 6 = CSI from originating trunk 7 = Filed NPA-NXX trunk group information plus CSI 8 = NNN+OSID+OTG or 00Y+OSID+OTG (N=TB CD-Null) 9 = Country Code + national number 10 = No CLI record 11 = Redirecting Number 12 = CLI received from Operator platform via RLT 13 = ANI of NCT originator 14-15 = Not Used

Word #, Bit #	Description																																																						
Word 30, bits 0-15	<p>Carrier Number (CN): Represents the carrier number provided on FG-B or FG-D originations, or the carrier number received over an SS7 IMT. If only three digits are used, then they are recorded in CN2-CN4 and CN1 will contain a TBCD-Null. This field also contains the last four digits of the specific 800 number assigned to VISA cards (9595). It will also contain the last four digits of the MCI card access number regardless of the access facility. Examples of carrier numbers are: MCI = 222, ATT = 288, and Friends = 333.</p> <table><thead><tr><th></th><th></th><th>FGB/FGD 3 digit CIC</th><th>FGB/D 4 digit CIC</th><th>visa card</th></tr></thead><tbody><tr><td>Word 30, bits 0-3</td><td>CN1</td><td>TBCD-Null</td><td>X</td><td>9</td></tr><tr><td>Word 30, bits 4-7</td><td>CN2</td><td>X</td><td>X</td><td>5</td></tr><tr><td>Word 30, bits 8-11</td><td>CN3</td><td>X</td><td>X</td><td>9</td></tr><tr><td>Word 30, bits 12-15</td><td>CN4</td><td>X</td><td>X</td><td>5</td></tr></tbody></table> <table><thead><tr><th></th><th></th><th>SS7 TNS</th><th>MCI card</th><th>VNet card</th></tr></thead><tbody><tr><td>Word 30, bits 0-3</td><td>CN1</td><td>X</td><td>1</td><td>1</td></tr><tr><td>Word 30, bits 4-7</td><td>CN2</td><td>X</td><td>0</td><td>1</td></tr><tr><td>Word 30, bits 8-11</td><td>CN3</td><td>X</td><td>2</td><td>1</td></tr><tr><td>Word 30, bits 12-15</td><td>CN4</td><td>X</td><td>2</td><td>1</td></tr></tbody></table>							FGB/FGD 3 digit CIC	FGB/D 4 digit CIC	visa card	Word 30, bits 0-3	CN1	TBCD-Null	X	9	Word 30, bits 4-7	CN2	X	X	5	Word 30, bits 8-11	CN3	X	X	9	Word 30, bits 12-15	CN4	X	X	5			SS7 TNS	MCI card	VNet card	Word 30, bits 0-3	CN1	X	1	1	Word 30, bits 4-7	CN2	X	0	1	Word 30, bits 8-11	CN3	X	2	1	Word 30, bits 12-15	CN4	X	2	1
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Word 30, bits 8-11	CN3	X	2	1																																																			
Word 30, bits 12-15	CN4	X	2	1																																																			
Word 31, bits 0-3	<p>Authorization Code ID Field (ACIF): Contains the Authorization-Code Identification Field for recording a card number status. This field indicates whether the card number (calling card or credit card) is good or bad.</p> <p>0 = Seven digit authcode file (default) 1 = 1st or only five digit authcode file 2 = 2nd five digit file 3 = 3rd five digit file 4 = 4th five digit file 5 = 5th five digit file 6 = Six digit authcode file 7 = Range restriction failure (invalid address digits) 8 = Positive Commercial Credit Card/89 Card/M Card Validation 9 = Not Used 10 = MCI Card/Visa Card invalid or not assigned. Disallowed. 11 = BOC billing number assigned but blocked 12 = BOC billing number usage exceeded 13 = Not Used 14 = Default authorization of MCI Card/VISA Card if response timeout from NCS/DAP 15 = MCI Card/VISA Card authorized by NCS/DAP</p>																																																						



Word #, Bit #	Description
Word 31, bits 4-10	<p>Release Code: Used with timepoint 7 qualifier to determine from which direction the release message came. The code indicates why one of the parties hung up, for example, normal release = 16, and no circuit available = 34.</p> <ul style="list-style-type: none"> <li>1 = Unallocated number</li> <li>2 = No route to specified network</li> <li>3 = No route to destination</li> <li>4 = Send special information tone</li> <li>5 = Misdialed trunk prefix</li> <li>16 = Normal clearing</li> <li>17 = User Busy</li> <li>18 = No user responding</li> <li>19 = No user responding (user alerted)</li> <li>21 = Call rejected</li> </ul>
	<ul style="list-style-type: none"> <li>22 = Number changed</li> <li>27 = Destination out of service</li> <li>28 = Address incomplete</li> <li>29 = Facility rejected</li> <li>31 = Normal - unspecified</li> <li>34 = No circuit available</li> <li>38 = Network out of order</li> <li>41 = Temporary failure</li> <li>42 = Switching equipment congestion</li> <li>44 = Requested channel not available</li> <li>47 = Resource unavailable - unspecified</li> <li>50 = Requested facility not subscribed</li> <li>55 = Incoming calls barred within CUG</li> <li>57 = Bearer capability not authorized</li> <li>58 = Bearer capability not available</li> <li>63 = Service or option not available</li> <li>65 = Bearer capability not implemented</li> <li>69 = Requested facility not implemented</li> <li>70 = Only restricted digital information bearer capability is available</li> <li>79 = Service or option not implemented</li> <li>87 = Called user not member of CUG</li> <li>88 = Incompatible destination</li> <li>91 = Invalid transit network selector</li> <li>95 = Invalid message - unspecified</li> <li>97 = Message type non-existent or not implemented</li> <li>99 = Parameter non-existent or not implemented - discarded</li> <li>102 = Recovery on timer expired</li> <li>103 = Parameter non-existent or not implemented - passed on</li> <li>111 = Protocol error - unspecified</li> <li>127 = Interworking - unspecified</li> </ul>
Word 31, bits 11-13	<p>NCID Sequence Number: Represents the number of calls which have occurred on the same port number with the same Timepoint 1 value. The first call will have the sequence number set to '0'. This value will increase incrementally for each successive call which originates on the same port number which has the same Timepoint 1 value. Range = 0-7.</p>

Word #, Bit #	Description
Word 31, bit 14	<p>NCID Location (NCIDLOC): This bit identifies when the NCID is recorded in the Authcode field of the call record. The NCID is recorded in the Authcode field of the call record at intermediate and terminating switches if the Authcode field is not being used to record other information. If the Authcode field is being used to record other information, the NCID is recorded in the "NCID" field of the 64 word call record.</p> <p>0 = NCID is not recorded in the Authcode field (default) 1 = NCID is recorded in the Authcode field</p>
Word 31, bit 15	<p>Remote ANI Screened (RS): This bit is set to '1' if the NPA of the ANI is not listed in the switch's Local-Service-Area table, and the ANI was sent to the DAP for ANI index screening purposes. This bit is set to '0' if the switch sent the ANI to the DAP for ANI index screening purposes and no response is received from the DAP or if normal switch ANI screening occurs.</p> <p>0 = ANI was not screened by the DAP (default) 1 = ANI was screened by the DAP</p>

**Table 302 - ECDR/EPNR Record Format:**

Word #, Bit #	Description
Words 0-11, bits 0-15	Same as CDR/PNR format.
Word 12, bits 0-15 Word 13, bits 0-15 Word 14, bits 0-15 Word 15, bits 0-11	<p>Calling Location ID: Contains 1-15 digits of the originating station line. This is the ANI number of the calling party. If 1 to 15 ANI or CSI digits are received, they are recorded in order starting with CLI1. Unused bytes contain TBCD-Null. If no ANI or CSI is available, record the OSID/OTG in CLI4-10, except where noted. If nothing is recorded in the CLI field, use a NOCLI value of 10. This field contains 1 of the following nine formats:</p> <ol style="list-style-type: none"> <li>1. VNet CAMA DAL originations: If CSI is available, prefix the CSI with filed HNPA and HNXX information, if available, and record. Use NOCLI value of 7.</li> <li>2. FG-C Originations: If ANI or CSI information is not available and the number is in the 00Y+NXX-XXXX format, record the 00Y code that was received in CLI1-3, and record the OSID/OTG in CLI4-10. Use NOCLI value of 8.</li> <li>3. Inband FG-D Originations: Record the ANI that was received starting with CL1. Use NOCLI value of 1.</li> <li>4. SS7 FG-D Originations: Record the charge number, if available. If the charge number is not available, record the calling party number. Use NOCLI value of 2 or 3.</li> <li>5. International Originations: Record the country code and national number of the calling party. Use NOCLI value of 9.</li> <li>6. SS7 IMTs Originations: Record the following information in this order of importance: 1) charge number, 2) calling party number, 3) OSD/OTG from generic digits. Use NOCLI value of 2, 3, or 8.</li> <li>7. SS7 Reseller Originations: The CLI field will be filled with TBCD Nulls.</li> <li>8. SS7 Private Network Originations: The CLI field will be filled with TBCD Nulls.</li> <li>9. PRI Originations: Record the calling party number received in the ISDN setup message.</li> </ol>

Word #, Bit #	Description			
	The format:			
		1-15 digit ANI/CSI (13 digit example)	OSID/OTG	Incoming Int'l
	Word 12, bits 0-3	CLI1 X	TBCD-Null	X(CC)
	Word 12, bits 4-7	CLI2 X	TBCD-Null	X(CC)
	Word 12, bits 8-11	CLI3 X	TBCD-Null	X(CC)
	Word 12, bits 12-15	CLI4 X	X(OSID)	X(NN)
	Word 13, bits 0-3	CLI5 X	X(OSID)	X(NN)
	Word 13, bits 4-7	CLI6 X	X(OSID)	X(NN)
	Word 13, bits 8-11	CLI7 X	X(OTG)	X(NN)
	Word 13, bits 12-15	CLI8 X	X(OTG)	X(NN)
	Word 14, bits 0-3	CLI9 X	X(OTG)	X(NN)
	Word 14, bits 4-7	CLI10 X	X(OTG)	X(NN)
	Word 14, bits 8-11	CLI11 X	TBCD-Null	X(NN)
	Word 14, bits 12-15	CLI12 X	TBCD-Null	X(NN)
	Word 15, bits 0-3	CLI13 X	TBCD-Null	X(NN)
	Word 15, bits 4-7	CLI14 TBCD-Null	TBCD-Null	X(NN)
	Word 15, bits 8-11	CLI15 TBCD-Null	TBCD-Null	X(NN)
	CC = Customer Connect			
	NN = National Number			
	OSID = Originating Switch ID (000-999)			
	OTG = Originating Trunk Group (0000-8191)			
Word 15, bits 12-15	Authorization Code (Auth Code): Same as CDR/PNR format Auth Code, but represents 45 digits.			
Word 16, bits 0-15				
Word 17, bits 0-15	1. Authorization Codes:			
Word 18, bits 0-15		5 digit	6 digit	7 digit
Word 19, bits 0-15	Word 15, bits 12-15 A1	AUTH1	AUTH1	AUTH1
Word 20, bits 0-15	Word 16, bits 0-3 A2	AUTH2	AUTH2	AUTH2
Word 21, bits 0-15	Word 16, bits 4-7 A3	AUTH3	AUTH3	AUTH3
Word 22, bits 0-15	Word 16, bits 8-11 A4	AUTH4	AUTH4	AUTH4
Word 23, bits 0-15	Word 16, bits 12-15 A5	AUTH5	AUTH5	AUTH5
Word 24, bits 0-15	Word 17, bits 0-3 A6	SEC1	AUTH6	AUTH6
Word 25, bits 0-15	Word 17, bits 4-7 A7	SEC2	SEC1	AUTH7
Word 26, bits 0-15	Word 17, bits 8-11 A8	SEC3	SEC2	SEC1
	Word 17, bits 12-15 A9	SEC4	SEC3	SEC2
	Word 18, bits 0-3 A10	T-Null	SEC4	SEC3
	Word 18, bits 4-7 A11	SUPP1	T-Null	SEC4
	Word 18, bits 8-11 A12	SUPP2	SUPP1	T-Null
	Word 18, bits 12-15 A13	SUPP3	SUPP2	SUPP1

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Word #, Bit #	Description			
	Word 19, bits 0-3	A14	SUPP4	SUPP3 SUPP2
	Word 19, bits 4-7	A15	SUPP5	SUPP4 SUPP3
	Word 19, bits 8-11	A16	SUPP6	SUPP5 SUPP4
	Word 19, bits 12-15	A17	SUPP7	SUPP6 SUPP5
	Word 20, bits 0-3	A18	SUPP8	SUPP7 SUPP6
	Word 20, bits 4-7	A19	SUPP9	SUPP8 SUPP7
	Word 20, bits 8-11	A20	SUPP10	SUPP9 SUPP8
	Word 20, bits 12-15	A21	SUPP11	SUPP10 SUPP9
	Word 21, bits 0-3	A22	SUPP12	SUPP11 SUPP10
	Word 21, bits 4-7	A23	SUPP13	SUPP12 SUPP11
	Word 21, bits 8-11	A24	SUPP14	SUPP13 SUPP12
	Word 21, bits 12-15	A25	SUPP15	SUPP14 SUPP13
	Word 22, bits 0-3	A26	SUPP16	SUPP15 SUPP14
	Word 22, bits 4-7	A27	SUPP17	SUPP16 SUPP15
	Word 22, bits 8-11	A28	SUPP18	SUPP17 SUPP16
	Word 22, bits 12-15	A29	SUPP19	SUPP18 SUPP17
	Word 23, bits 0-3	A30	SUPP20	SUPP19 SUPP18
	Word 23, bits 4-7	A31	SUPP21	SUPP20 SUPP19
	Word 23, bits 8-11	A32	SUPP22	SUPP21 SUPP20
	Word 23, bits 12-15	A33	SUPP23	SUPP22 SUPP21
	Word 24, bits 0-3	A34	SUPP24	SUPP23 SUPP22
	Word 24, bits 4-7	A35	SUPP25	SUPP24 SUPP23
	Word 24, bits 8-11	A36	SUPP26	SUPP25 SUPP24
	Word 24, bits 12-15	A37	SUPP27	SUPP26 SUPP25
	Word 25, bits 0-3	A38	SUPP28	SUPP27 SUPP26
	Word 25, bits 4-7	A39	SUPP29	SUPP28 SUPP27
	Word 25, bits 8-11	A40	SUPP30	SUPP29 SUPP28
	Word 25, bits 12-15	A41	T-Null	SUPP30 SUPP29
	Word 26, bits 0-3	A42	T-Null	T-Null SUPP30
	Word 26, bits 4-7	A43	T-Null	T-Null T-Null
	Word 26, bits 8-11	A44	T-Null	T-Null T-Null
	Word 26, bits 12-15	A45	T-Null	T-Null T-Null
	T-Null = TBCD-Null			
	2. Calling Station ID (CSI):			
			7 digit	1-10 digit
	Word 15, bits 12-15	A1	X	X
	Word 16, bits 0-3	A2	X	X
	Word 16, bits 4-7	A3	X	X
	Word 16, bits 8-11	A4	X	X
	Word 16, bits 12-15	A5	X	X
	Word 17, bits 0-3	A6	X	X
	Word 17, bits 4-7	A7	X	X
	Word 17, bits 8-11	A8	TBCD-Null	X
	Word 17, bits 12-15	A9	SUPP1	X
	Word 18, bits 0-3	A10	SUPP2	X
	Word 18, bits 4-7	A11	SUPP3	TBCD-Null
	Word 18, bits 8-11	A12	SUPP4	SUPP1
	Word 18, bits 12-15	A13	SUPP5	SUPP2

Word #, Bit #	Description			
	Word 19, bits 0-3	A14	SUPP6	SUPP3
	Word 19, bits 4-7	A15	SUPP7	SUPP4
	Word 19, bits 8-11	A16	SUPP8	SUPP5
	Word 19, bits 12-15	A17	SUPP9	SUPP6
	Word 20, bits 0-3	A18	SUPP10	SUPP7
	Word 20, bits 4-7	A19	SUPP11	SUPP8
	Word 20, bits 8-11	A20	SUPP12	SUPP9
	Word 20, bits 12-15	A21	SUPP13	SUPP10
	Word 21, bits 0-3	A22	SUPP14	SUPP11
	Word 21, bits 4-7	A23	SUPP15	SUPP12
	Word 21, bits 8-11	A24	SUPP16	SUPP13
	Word 21, bits 12-15	A25	SUPP17	SUPP14
	Word 22, bits 0-3	A26	SUPP18	SUPP15
	Word 22, bits 4-7	A27	SUPP19	SUPP16
	Word 22, bits 8-11	A28	SUPP20	SUPP17
	Word 22, bits 12-15	A29	SUPP21	SUPP18
	Word 23, bits 0-3	A30	SUPP22	SUPP19
	Word 23, bits 4-7	A31	SUPP23	SUPP20
	Word 23, bits 8-11	A32	SUPP24	SUPP21
	Word 23, bits 12-15	A33	SUPP25	SUPP22
	Word 24, bits 0-3	A34	SUPP26	SUPP23
	Word 24, bits 4-7	A35	SUPP27	SUPP24
	Word 24, bits 8-11	A36	SUPP28	SUPP25
	Word 24, bits 12-15	A37	SUPP29	SUPP26
	Word 25, bits 0-3	A38	SUPP30	SUPP27
	Word 25, bits 4-7	A39	TBCD-Null	SUPP28
	Word 25, bits 8-11	A40	TBCD-Null	SUPP29
	Word 25, bits 12-15	A41	TBCD-Null	SUPP30
	Word 26, bits 0-3	A42	TBCD-Null	TBCD-Null
	Word 26, bits 4-7	A43	TBCD-Null	TBCD-Null
	Word 26, bits 8-11	A44	TBCD-Null	TBCD-Null
	Word 26, bits 12-15	A45	TBCD-Null	TBCD-Null
	3. Supplemental Codes:			
	Word 15, bits 12-15	A1	SUPP1	
	Word 16, bits 0-3	A2	SUPP2	
	Word 16, bits 4-7	A3	SUPP3	
	Word 16, bits 8-11	A4	SUPP4	
	Word 16, bits 12-15	A5	SUPP5	
	Word 17, bits 0-3	A6	SUPP6	
	Word 17, bits 4-7	A7	SUPP7	
	Word 17, bits 8-11	A8	SUPP8	
	Word 17, bits 12-15	A9	SUPP9	
	Word 18, bits 0-3	A10	SUPP10	
	Word 18, bits 4-7	A11	SUPP11	
	Word 18, bits 8-11	A12	SUPP12	
	Word 18, bits 12-15	A13	SUPP13	

Word #, Bit #	Description		
	Word 19, bits 0-3	A14	SUPP14
	Word 19, bits 4-7	A15	SUPP15
	Word 19, bits 8-11	A16	SUPP16
	Word 19, bits 12-15	A17	SUPP17
	Word 20, bits 0-3	A18	SUPP18
	Word 20, bits 4-7	A19	SUPP19
	Word 20, bits 8-11	A20	SUPP20
	Word 20, bits 12-15	A21	SUPP21
	Word 21, bits 0-3	A22	SUPP22
	Word 21, bits 4-7	A23	SUPP23
	Word 21, bits 8-11	A24	SUPP24
	Word 21, bits 12-15	A25	SUPP25
	Word 22, bits 0-3	A26	SUPP26
	Word 22, bits 4-7	A27	SUPP27
	Word 22, bits 8-11	A28	SUPP28
	Word 22, bits 12-15	A29	SUPP29
	Word 23, bits 0-3	A30	TBCD-Null
	Word 23, bits 4-7	A31	TBCD-Null
	Word 23, bits 8-11	A32	TBCD-Null
	Word 23, bits 12-15	A33	TBCD-Null
	Word 24, bits 0-3	A34	TBCD-Null
	Word 24, bits 4-7	A35	TBCD-Null
	Word 24, bits 8-11	A36	TBCD-Null
	Word 24, bits 12-15	A37	TBCD-Null
	Word 25, bits 0-3	A38	TBCD-Null
	Word 25, bits 4-7	A39	TBCD-Null
	Word 25, bits 8-11	A40	TBCD-Null
	Word 25, bits 12-15	A41	TBCD-Null
	Word 26, bits 0-3	A42	TBCD-Null
	Word 26, bits 4-7	A43	TBCD-Null
	Word 26, bits 8-11	A44	TBCD-Null
	Word 26, bits 12-15	A45	TBCD-Null
	4. VNet Remote Access and Calling Party Number:		
	Word 15, bits 12-15	A1	N
	Word 16, bits 0-3	A2	X
	Word 16, bits 4-7	A3	X
	Word 16, bits 8-11	A4	N
	Word 16, bits 12-15	A5	X
	Word 17, bits 0-3	A6	X
	Word 17, bits 4-7	A7	X
	Word 17, bits 8-11	A8	X
	Word 17, bits 12-15	A9	X
	Word 18, bits 0-3	A10	X
	Word 18, bits 4-7	A11	TBCD-Null
	Word 18, bits 8-11	A12	SUPP1
	Word 18, bits 12-15	A13	SUPP2

Word #, Bit #	Description		
	Word 19, bits 0-3	A14	SUPP3
	Word 19, bits 4-7	A15	SUPP4
	Word 19, bits 8-11	A16	SUPP5
	Word 19, bits 12-15	A17	SUPP6
	Word 20, bits 0-3	A18	SUPP7
	Word 20, bits 4-7	A19	SUPP8
	Word 20, bits 8-11	A20	SUPP9
	Word 20, bits 12-15	A21	SUPP10
	Word 21, bits 0-3	A22	SUPP11
	Word 21, bits 4-7	A23	SUPP12
	Word 21, bits 8-11	A24	SUPP13
	Word 21, bits 12-15	A25	SUPP14
	Word 22, bits 0-3	A26	SUPP15
	Word 22, bits 4-7	A27	SUPP16
	Word 22, bits 8-11	A28	SUPP17
	Word 22, bits 12-15	A29	SUPP18
	Word 23, bits 0-3	A30	SUPP19
	Word 23, bits 4-7	A31	SUPP20
	Word 23, bits 8-11	A32	SUPP21
	Word 23, bits 12-15	A33	SUPP22
	Word 24, bits 0-3	A34	SUPP23
	Word 24, bits 4-7	A35	SUPP24
	Word 24, bits 8-11	A36	SUPP25
	Word 24, bits 12-15	A37	SUPP26
	Word 25, bits 0-3	A38	SUPP27
	Word 25, bits 4-7	A39	SUPP28
	Word 25, bits 8-11	A40	SUPP29
	Word 25, bits 12-15	A41	SUPP30
	Word 26, bits 0-3	A42	TBCD-Null
	Word 26, bits 4-7	A43	TBCD-Null
	Word 26, bits 8-11	A44	TBCD-Null
	Word 26, bits 12-15	A45	TBCD-Null
	5. Credit Card:		
	Word 15, bits 12-15	A1	X
	Word 16, bits 0-3	A2	X
	Word 16, bits 4-7	A3	X
	Word 16, bits 8-11	A4	X
	Word 16, bits 12-15	A5	X
	Word 17, bits 0-3	A6	X
	Word 17, bits 4-7	A7	X
	Word 17, bits 8-11	A8	X
	Word 17, bits 12-15	A9	X
	Word 18, bits 0-3	A10	X
	Word 18, bits 4-7	A11	X
	Word 18, bits 8-11	A12	X
	Word 18, bits 12-15	A13	X



Word #, Bit #	Description
	Word 19, bits 0-3A      A14      X Word 19, bits 4-7      A15      X Word 19, bits 8-11      A16      X Word 19, bits 12-15      A17      X Word 20, bits 0-3      A18      X Word 20, bits 4-7      A19      X Word 20, bits 8-11      A20      TBCD-Null Word 20, bits 12-15      A21      SUPP1 Word 21, bits 0-3      A22      SUPP2 Word 21, bits 4-7      A23      SUPP3 Word 21, bits 8-11      A24      SUPP4 Word 21, bits 12-15      A25      SUPP5 Word 22, bits 0-3      A26      SUPP6 Word 22, bits 4-7      A27      SUPP7 Word 22, bits 8-11      A28      SUPP8 Word 22, bits 12-15      A29      SUPP9 Word 23, bits 0-3      A30      SUPP10 Word 23, bits 4-7      A31      SUPP11 Word 23, bits 8-11      A32      SUPP12 Word 23, bits 12-15      A33      SUPP13 Word 24, bits 0-3      A34      SUPP14 Word 24, bits 4-7      A35      SUPP15 Word 24, bits 8-11      A36      SUPP16 Word 24, bits 12-15      A37      SUPP17 Word 25, bits 0-3      A38      SUPP18 Word 25, bits 4-7      A39      SUPP19 Word 25, bits 8-11      A40      SUPP20 Word 25, bits 12-15      A41      SUPP21 Word 26, bits 0-3      A42      SUPP22 Word 26, bits 4-7      A43      SUPP23 Word 26, bits 8-11      A44      SUPP24 Word 26, bits 12-15      A45      SUPP25
	6. 14 Digit MC VNet Calling Card:  Word 15, bits 12-15      A1      X Word 16, bits 0-3      A2      X Word 16, bits 4-7      A3      X Word 16, bits 8-11      A4      X Word 16, bits 12-15      A5      X Word 17, bits 0-3      A6      X Word 17, bits 4-7      A7      X Word 17, bits 8-11      A8      X Word 17, bits 12-15      A9      X Word 18, bits 0-3      A10      X Word 18, bits 4-7      A11      TBCD-A Word 18, bits 8-11      A12      TBCD-A Word 18, bits 12-15      A13      TBCD-A

Word #, Bit #	Description		
	Word 19, bits 0-3	A14	TBCD-A
	Word 19, bits 4-7	A15	TBCD-Null
	Word 19, bits 8-11	A16	SUPP1
	Word 19, bits 12-15	A17	SUPP2
	Word 20, bits 0-3	A18	SUPP3
	Word 20, bits 4-7	A19	SUPP4
	Word 20, bits 8-11	A20	SUPP5
	Word 20, bits 12-15	A21	SUPP6
	Word 21, bits 0-3	A22	SUPP7
	Word 21, bits 4-7	A23	SUPP8
	Word 21, bits 8-11	A24	SUPP9
	Word 21, bits 12-15	A25	SUPP10
	Word 22, bits 0-3	A26	SUPP11
	Word 22, bits 4-7	A27	SUPP12
	Word 22, bits 8-11	A28	SUPP13
	Word 22, bits 12-15	A29	SUPP14
	Word 23, bits 0-3	A30	SUPP15
	Word 23, bits 4-7	A31	SUPP 16
	Word 23, bits 8-11	A32	SUPP 17
	Word 23, bits 12-15	A33	SUPP18
	Word 24, bits 0-3	A34	SUPP19
	Word 24, bits 4-7	A35	SUPP20
	Word 24, bits 8-11	A36	SUPP21
	Word 24, bits 12-15	A37	SUPP22
	Word 25, bits 0-3	A38	SUPP23
	Word 25, bits 4-7	A39	SUPP24
	Word 25, bits 8-11	A40	SUPP25
	Word 25, bits 12-15	A41	SUPP26
	Word 26, bits 0-3	A42	SUPP27
	Word 26, bits 4-7	A43	SUPP28
	Word 26, bits 8-11	A44	SUPP29
	Word 26, bits 12-15	A45	SUPP30
	7. OSD/OTG:		
	Word 15, bits 12-15	A1	X (OSID)
	Word 16, bits 0-3	A2	X (OSID)
	Word 16, bits 4-7	A3	X (OSID)
	Word 16, bits 8-11	A4	X (OTG)
	Word 16, bits 12-15	A5	X (OTG)
	Word 17, bits 0-3	A6	X (OTG)
	Word 17, bits 4-7	A7	X (OTG)
	Word 17, bits 8-11	A8	TBCD-Null
	Word 17, bits 12-15	A9	TBCD-Null
	Word 18, bits 0-3	A10	TBCD-Null
	Word 18, bits 4-7	A11	TBCD-Null
	Word 18, bits 8-11	A12	TBCD-Null
	Word 18, bits 12-15	A13	TBCD-Null

Word #, Bit #	Description		
	Word 19, bits 0-3	A14	TBCD-Null
	Word 19, bits 4-7	A15	TBCD-Null
	Word 19, bits 8-11	A16	TBCD-Null
	Word 19, bits 12-15	A17	TBCD-Null
	Word 20, bits 0-3	A18	TBCD-Null
	Word 20, bits 4-7	A19	TBCD-Null
	Word 20, bits 8-11	A20	TBCD-Null
	Word 20, bits 12-15	A21	TBCD-Null
	Word 21, bits 0-3	A22	TBCD-Null
	Word 21, bits 4-7	A23	TBCD-Null
	Word 21, bits 8-11	A24	TBCD-Null
	Word 21, bits 12-15	A25	TBCD-Null
	Word 22, bits 0-3	A26	TBCD-Null
	Word 22, bits 4-7	A27	TBCD-Null
	Word 22, bits 8-11	A28	TBCD-Null
	Word 22, bits 12-15	A29	TBCD-Null
	Word 23, bits 0-3	A30	TBCD-Null
	Word 23, bits 4-7	A31	TBCD-Null
	Word 23, bits 8-11	A32	TBCD-Null
	Word 23, bits 12-15	A33	TBCD-Null
	Word 24, bits 0-3	A34	TBCD-Null
	Word 24, bits 4-7	A35	TBCD-Null
	Word 24, bits 8-11	A36	TBCD-Null
	Word 24, bits 12-15	A37	TBCD-Null
	Word 25, bits 0-3	A38	TBCD-Null
	Word 25, bits 4-7	A39	TBCD-Null
	Word 25, bits 8-11	A40	TBCD-Null
	Word 25, bits 12-15	A41	TBCD-Null
	Word 26, bits 0-3	A42	TBCD-Null
	Word 26, bits 4-7	A43	TBCD-Null
	Word 26, bits 8-11	A44	TBCD-Null
	Word 26, bits 12-15	A45	TBCD-Null
	OSID = Originating Switch ID OTG = Originating Trunk ID		
	8. Telecommunication/PTT Cards:		
	Word 15, bits 12-15	A1	X
	Word 16, bits 0-3	A2	X
	Word 16, bits 4-7	A3	X
	Word 16, bits 8-11	A4	X
	Word 16, bits 12-15	A5	X
	Word 17, bits 0-3	A6	X
	Word 17, bits 4-7	A7	X
	Word 17, bits 8-11	A8	X
	Word 17, bits 12-15	A9	X
	Word 18, bits 0-3	A10	X
	Word 18, bits 4-7	A11	X
	Word 18, bits 8-11	A12	X
	Word 18, bits 12-15	A13	X

Word #, Bit #	Description		
	Word 19, bits 0-3	A14	
	Word 19, bits 4-7	A15	X
	Word 19, bits 8-11	A16	X
	Word 19, bits 12-15	A17	X
	Word 20, bits 0-3	A18	X
	Word 20, bits 4-7	A19	X
	Word 20, bits 8-11	A20	X
	Word 20, bits 12-15	A21	X
	Word 21, bits 0-3	A22	X
	Word 21, bits 4-7	A23	X
	Word 21, bits 8-11	A24	TBCD-Null
	Word 21, bits 12-15	A25	SUPP1
	Word 22, bits 0-3	A26	SUPP2
	Word 22, bits 4-7	A27	SUPP3
	Word 22, bits 8-11	A28	SUPP4
	Word 22, bits 12-15	A29	SUPP5
	Word 23, bits 0-3	A30	SUPP6
	Word 23, bits 4-7	A31	SUPP7
	Word 23, bits 8-11	A32	SUPP8
	Word 23, bits 12-15	A33	SUPP9
	Word 24, bits 0-3	A34	SUPP10
	Word 24, bits 4-7	A35	SUPP11
	Word 24, bits 8-11	A36	SUPP12
	Word 24, bits 12-15	A37	SUPP13
	Word 25, bits 0-3	A35	SUPP14
	Word 25, bits 4-7	A39	SUPP15
	Word 25, bits 8-11	A40	SUPP16
	Word 25, bits 12-15	A41	SUPP17
	Word 26, bits 0-3	A42	SUPP18
	Word 26, bits 4-7	A43	SUPP19
	Word 26, bits 8-11	A44	SUPP20
	Word 26, bits 12-15	A45	SUPP21
	9. Business Group ID:		
	Word 15, bits 12-15	A1	X
	Word 16, bits 0-3	A2	X
	Word 16, bits 4-7	A3	X
	Word 16, bits 8-11	A4	X
	Word 16, bits 12-15	A5	X
	Word 17, bits 0-3	A6	X
	Word 17, bits 4-7	A7	TBCD-Null
	Word 17, bits 8-11	A8	SUPP1
	Word 17, bits 12-15	A9	SUPP2
	Word 18, bits 0-3	A10	SUPP3
	Word 18, bits 4-7	A11	SUPP4
	Word 18, bits 8-11	A12	SUPP5
	Word 18, bits 12-15	A13	SUPP6

Word #, Bit #	Description
	Word 19, bits 0-3 A14 SUPP7
	Word 19, bits 4-7 A15 SUPP8
	Word 19, bits 8-11 A16 SUPP9
	Word 19, bits 12-15 A17 SUPP10
	Word 20, bits 0-3 A18 SUPP11
	Word 20, bits 4-7 A19 SUPP12
	Word 20, bits 8-11 A20 SUPP13
	Word 20, bits 12-15 A21 SUPP14
	Word 21, bits 0-3 A22 SUPP 15
	Word 21, bits 4-7 A23 SUPP16
	Word 21, bits 8-11 A24 SUPP17
	Word 21, bits 12-15 A25 SUPP18
	Word 22, bits 0-3 A26 SUPP19
	Word 22, bits 4-7 A27 SUPP20
	Word 22, bits 8-11 A28 SUPP21
	Word 22, bits 12-15 A29 SUPP22
	Word 23, bits 0-3 A30 SUPP23
	Word 23, bits 4-7 A31 SUPP24
	Word 23, bits 8-11 A32 SUPP25
	Word 23, bits 12-15 A33 SUPP26
	Word 24, bits 0-3 A34 SUPP27
	Word 24, bits 4-7 A35 SUPP28
	Word 24, bits 8-11 A36 SUPP29
	Word 24, bits 12-15 A37 SUPP30
	Word 25, bits 0-3 A38 TBCD-Null
	Word 25, bits 4-7 A39 TBCD-Null
	Word 25, bits 8-11 A40 TBCD-Null
	Word 25, bits 12-15 A41 TBCD-Null
	Word 26, bits 0-3 A42 TBCD-Null
	Word 26, bits 4-7 A43 TBCD-Null
	Word 26, bits 8-11 A44 TBCD-Null
	Word 26, bits 12-15 A45 TBCD-Null
	11. Network Information:
	Word 15, bits 12-15 A1 X
	Word 16, bits 0-3 A2 X
	Word 16, bits 4-7 A3 X
	Word 16, bits 8-11 A4 X
	Word 16, bits 12-15 A5 TBCD-Null
	Word 17, bits 0-3 A6 SUPP1
	Word 17, bits 4-7 A7 SUPP2
	Word 17, bits 8-11 A8 SUPP3
	Word 17, bits 12-15 A9 SUPP4
	Word 18, bits 0-3 A10 SUPP5
	Word 18, bits 4-7 A11 SUPP6
	Word 18, bits 8-11 A12 SUPP7
	Word 18, bits 12-15 A13 SUPP8

Word #, Bit #	Description
	<p>Word 19, bits 0-3      A14      SUPP9</p> <p>Word 19, bits 4-7      A15      SUPP10</p> <p>Word 19, bits 8-11      A16      SUPP11</p> <p>Word 19, bits 12-15      A17      SUPP12</p> <p>Word 20, bits 0-3      A18      SUPP13</p> <p>Word 20, bits 4-7      A19      SUPP14</p> <p>Word 20, bits 8-11      A20      SUPP15</p> <p>Word 20, bits 12-15      A21      SUPP16</p> <p>Word 21, bits 0-3      A22      SUPP17</p> <p>Word 21, bits 4-7      A23      SUPP18</p> <p>Word 21, bits 8-11      A24      SUPP19</p> <p>Word 21, bits 12-15      A25      SUPP20</p> <p>Word 22, bits 0-3      A26      SUPP21</p> <p>Word 22, bits 4-7      A27      SUPP22</p> <p>Word 22, bits 8-11      A28      SUPP23</p> <p>Word 22, bits 12-15      A29      SUPP24</p> <p>Word 23, bits 0-3      A30      SUPP25</p> <p>Word 23, bits 4-7      A31      SUPP26</p> <p>Word 23, bits 8-11      A32      SUPP27</p> <p>Word 23, bits 12-15      A33      SUPP28</p> <p>Word 24, bits 0-3      A34      SUPP29</p> <p>Word 24, bits 4-7      A35      SUPP30</p> <p>Word 24, bits 8-11      A36      TBCD-Null</p> <p>Word 24, bits 12-15      A37      TBCD-Null</p> <p>Word 25, bits 0-3      A38      TBCD-Null</p> <p>Word 25, bits 4-7      A39      TBCD-Null</p> <p>Word 25, bits 8-11      A40      TBCD-Null</p> <p>Word 25, bits 12-15      A41      TBCD-Null</p> <p>Word 26, bits 0-3      A42      TBCD-Null</p> <p>Word 26, bits 4-7      A43      TBCD-Null</p> <p>Word 26, bits 8-11      A44      TBCD-Null</p> <p>Word 26, bits 12-15      A45      TBCD-Null</p>
	<p>12. Network Call Identifier (NCID) - If the NCID is recorded in the "A" field, it will be recorded in binary beginning with A1. The Entry Code field will be indicative of the call processing associated with the particular call or "0". If the NCID is recorded in the NCID field of a 64 word call record, the Entry Code will also be indicative of the call processing associated with the particular call or "0". The NCID is comprised of the following:</p> <p>Originating Switch ID  Originating Trunk Group  Originating Port Number  Timepoint One  NCID Sequence Number</p>
Word 27, bits 0-3	Feature Code (FC): Same as CDR/PNR format.
Word 27, bits 4-7	Terminating Network Code (TNC): Same as CDR/PNR format.
Word 27, bits 8-11	Network Access Type (NAT): Same as CDR/PNR format.
Word 27, bits 12-15	Timepoint 7 Qualifier (TP&Q): Same as CDR/PNR format.
Word 28, bits 0-6	Entry Code (EC): Same as CDR/PNR format.
Word 28, bits 7-9	Prefix Digits (PD): Same as CDR/PNR format.

Word #, Bit #	Description
Word 28, bits 10-12	NCS/DAP ID (NDID): Same as CDR/PNR format.
Word 28, bits 13-15	Division ID (DIVID): Same as CDR/PNR format.
Word 29, bit 0	Distant Overflow (DO): Same as CDR/PNR format.
Word 29, bit 1	MCI Network Overflow (MNO): This bit indicates whether or not the Cause parameter that initiated overflow was generated due to MCI network detected conditions versus Reseller or Customer Location detected circumstances. This bit is set to 1 if the MNO subfield of the MBCSI parameter is set to 1 which indicates that the cause parameter that initiated overflow was generated due to MCI network detected conditions. This bit is set to 0 if the MNO subfield of the MBCSI parameter is set to 0 which indicates that the cause parameter that initiated overflow was generated due to a LEC, BOC, or Reseller condition.
Word 29, bit 2	Customer Connect (cc): Same as CDR/PNR format.
Word 29, bit 3	Inter-Network (IN): Same as CDR/PNR format.
Word 29, bit 4	Reported Overflow (RO): Same as CDR/PNR format.
Word 29, bit 5	Not Used.
Word 29, bit 6	Call Direction (CD): Same as CDR/PNR format.
Word 29, bit 7	Destination (DE): Same as CDR/PNR format.
Word 29, bit 8	Dedicated Termination (DT): Same as CDR/PNR format.
Word 29, bits 9-10	Not Used.
Word 29, bit 11	Satellite (SA): Same as CDR/PNR format.
Word 29, bits 12-15	Nature of Calling Location ID (NOCLI): Same as CDR/PNR format.
Word 30, bits 0-15	Carrier Number (CN): Same as CDR/PNR format.
Word 31, bits 0-3	Authorization Code ID (ACIF): Same as CDR/PNR format.
Word 31, bits 4-10	Release Code (RC): Same as CDR/PNR format.
Word 31, bits 11-13	NCID Sequence Number: Same as CDR/PNR format.
Word 31, bit 14	NCID Location (NCIDLOC): Same as CDR/PNR format.
Word 31, bit 15	Remote ANI Screened (RS): Same as CDR/PNR format.
Word 32, bits 0-15 Word 33, bits 0-15	Not Used.
Word 34, bits 0-15 Word 35, bits 0-15 Word 36, bits 0-15 Word 37, bits 0-15 Word 38, bits 0-15 Word 39, bits 0-15 Word 40, bits 0-3	Destination Address (DA): Records up to 25 digits of the destination address in TBCD format in the sequence that they are received or translated to, starting with D1. Unused bytes contain TBCD-Null.

Word #, Bit #	Description					
			7-digit	10-digit	DDD	IDDD
Word 34, bits 0-3	D1	N	N	N	N	CC
Word 34, bits 4-7	D2	X	X	X	X	CC
Word 34, bits 8-11	D3	X	X	X	X	CC
Word 34, bits 12-15	D4	X	N	N	N	NN
Word 35, bits 0-3	D5	X	X	X	X	NN
Word 35, bits 4-7	D6	X	X	X	X	NN
Word 35, bits 8-11	D7	X	X	X	X	NN
Word 35, bits 12-15	D8	X(TSID)	X	X	X	NN
Word 36, bits 0-3	D9	X(TSID)	X	X	X	NN
Word 36, bits 4-7	D10	X(TSID)	X	X	X	NN
Word 36, bits 8-11	D11	X(TTG)	X(TSID)	T-Null	T-Null	NN
Word 36, bits 12-15	D12	X(TTG)	X(TSID)	T-Null	T-Null	NN
Word 37, bits 0-3	D13	X(TTG)	X(TSID)	T-Null	T-Null	NN
Word 37, bits 4-7	D14	X(TTG)	X(TTG)	T-Null	T-Null	NN
Word 37, bits 8-11	D15	T-Null	X(TTG)	T-Null	T-Null	NN
Word 37, bits 12-15	D16	T-Null	X(TTG)	T-Null	T-Null	T-Null
Word 38, bits 0-3	D17	T-Null	X(TTG)	T-Null	T-Null	T-Null
Word 38, bits 4-7	D18	T-Null	T-Null	T-Null	T-Null	T-Null
Word 38, bits 8-11	D19	T-Null	T-Null	T-Null	T-Null	T-Null
Word 38, bits 12-15	D20	T-Null	T-Null	T-Null	T-Null	T-Null
Word 39, bits 0-3	D21	T-Null	T-Null	T-Null	T-Null	T-Null
Word 39, bits 4-7	D22	T-Null	T-Null	T-Null	T-Null	T-Null
Word 39, bits 8-11	D23	T-Null	T-Null	T-Null	T-Null	T-Null
Word 39, bits 12-15	D24	T-Null	T-Null	T-Null	T-Null	T-Null
Word 40, bits 0-3	D25	T-Null	T-Null	T-Null	T-Null	T-Null
CC = Customer Connect						
NN = National Number						
TSID = Terminating Switch ID						
TTG = Terminating Trunk ID						
T-Null = TBCD-Null						



Word #, Bit #	Description
	<div>18-digit</div> <div>Word 34, bits 0-3 D1 N</div> <div>Word 34, bits 4-7 D2 N</div> <div>Word 34, bits 8-11 D3 N</div> <div>Word 34, bits 12-15 D4 N</div> <div>Word 35, bits 0-3 D5 N</div> <div>Word 35, bits 4-7 D6 N</div> <div>Word 35, bits 8-11 D7 N</div> <div>Word 35, bits 12-15 D8 N</div> <div>Word 36, bits 0-3 D9 N</div> <div>Word 36, bits 4-7 D10 N</div> <div>Word 36, bits 8-11 D11 N</div> <div>Word 36, bits 12-15 D12 N</div> <div>Word 37, bits 0-3 D13 N</div> <div>Word 37, bits 4-7 D14 N</div> <div>Word 37, bits 8-11 D15 N</div> <div>Word 37, bits 12-15 D16 N</div> <div>Word 38, bits 0-3 D17 N</div> <div>Word 38, bits 4-7 D18 N</div> <div>Word 38, bits 8-11 D19 X(TSID)</div> <div>Word 38, bits 12-15 D20 X(TSID)</div> <div>Word 39, bits 0-3 D21 X(TSID)</div> <div>Word 39, bits 4-7 D22 X(TTG)</div> <div>Word 39, bits 8-11 D23 X(TTG)</div> <div>Word 39, bits 12-15 D24 X(TTG)</div> <div>Word 40, bits 0-3 D25 X(TTG)</div> <div>TSID = Terminating Switch ID</div> <div>TTG = Terminating Trunk ID</div>
<div>Word 40, bits 4-15</div> <div>Word 41, bits 0-15</div> <div>Word 42, bits 0-15</div> <div>Word 43, bits 0-15</div>	<div>Pretranslated Digits (PTD): Represents up to 15 digits of a number that is the translation of a number dialed by the caller.</div> <div><div><div>10 digit</div><div>VNet, SAC 00Y</div><div>DNIS, or SAC</div><div>Hotline Code</div></div><div><div>VNet/</div><div>7 digit</div><div>VNet or 15 digit</div><div>SNS (example)</div></div></div> <div>Word 40, bits 4-7 PTD1 N 0 N N</div> <div>Word 40, bits 8-11 PTD2 X 0 X N</div> <div>Word 40, bits 12-15 PTD3 X Y X N</div> <div>Word 41, bits 0-3 PTD4 N N X N</div> <div>Word 41, bits 4-7 PTD5 X X X N</div> <div>Word 41, bits 8-11 PTD6 X X X N</div> <div>Word 41, bits 12-15 PTD7 X X X N</div> <div>Word 42, bits 0-3 PTD8 X X T-Null N</div> <div>Word 42, bits 4-7 PTD9 X X T-Null N</div> <div>Word 42, bits 8-11 PTD10 X X T-Null N</div> <div>Word 42, bits 12-15 PTD11 T-Null T-Null T-Null N</div> <div>Word 43, bits 0-3 PTD12 T-Null T-Null T-Null N</div> <div>Word 43, bits 4-7 PTD13 T-Null T-Null T-Null N</div> <div>Word 43, bits 8-11 PTD14 T-Null T-Null T-Null N</div> <div>Word 43, bits 12-15 PTD15 T-Null T-Null T-Null N</div> <div>T-Null = TBCD-Null</div>

Word #, Bit #	Description																																																																
Word 44, bits 0-7	Enhanced International Routing (EIR) Call Type: Contains the EIR call type ID as received from the DAP in the NCS billing information parameter or from the operator in the NCS billing information ISUP RLT parameter. Recorded in binary.																																																																
Word 44, bits 8-14	Overflow Cause Value (OVFVAL): This field is the binary equivalent of the first cause value received or formatted in-switch. This value is taken from the cause value subfield in the cause parameter that initiated overflow.																																																																
Word 44, bit 15	Counts As Bid (CB): This field is used with the EIR feature. The bit is set to '1' or '0' as per the information received from the DAP in the CB field of the NCS billing information parameter or from the operator in the NCS billing information ISUP RLT parameter.  0 = Does not count as bid (default) 1 = Counts as bid																																																																
Word 45, bits 0-3	Overflow Cause Location (OVFCL): This field is the binary equivalent to the value recorded from the first cause location received or formatted in-switch. This information is taken from the cause location subfield in the cause parameter that initiated overflow.																																																																
Word 45, bits 4-15 Word 46, bits 0-15 Word 47, bits 0-15 Word 48, bits 0-15	Desired Terminating Address (DTA): These 15 bytes contain the originally intended or "desired" termination before overflow was triggered. They contain either: 1) the desired terminating switch id and trunk group for calls that were sent to a DTC termination, 2) a national number, or 3) international number based on what the action code returned from the DAP for the desired termination. <table><thead><tr><th></th><th></th><th>DTC DTSID + DTTG</th><th>DDD</th></tr></thead><tbody><tr><td>Word 45, bits 4-7</td><td>DTA1</td><td>0</td><td>N</td></tr><tr><td>Word 45, bits 8-11</td><td>DTA2</td><td>X(DTSID1)</td><td>X</td></tr><tr><td>Word 45, bits 12-15</td><td>DTA3</td><td>X(DTSID2)</td><td>X</td></tr><tr><td>Word 46, bits 0-3</td><td>DTA4</td><td>X(DTSID3)</td><td>N</td></tr><tr><td>Word 46, bits 4-7</td><td>DTA5</td><td>0</td><td>X</td></tr><tr><td>Word 46, bits 8-11</td><td>DTA6</td><td>X(DTTG1)</td><td>X</td></tr><tr><td>Word 46, bits 12-15</td><td>DTA7</td><td>X(DTTG2)</td><td>X</td></tr><tr><td>Word 47, bits 0-3</td><td>DTA8</td><td>X(DTTG3)</td><td>X</td></tr><tr><td>Word 47, bits 4-7</td><td>DTA9</td><td>X(DTTG4)</td><td>X</td></tr><tr><td>Word 47, bits 8-11</td><td>DTA10</td><td>TBCD-Null</td><td>X</td></tr><tr><td>Word 47, bits 12-15</td><td>DTA11</td><td>TBCD-Null</td><td>TBCD-Null</td></tr><tr><td>Word 48, bits 0-3</td><td>DTA12</td><td>TBCD-Null</td><td>TBCD-Null</td></tr><tr><td>Word 48, bits 4-7</td><td>DTA13</td><td>TBCD-Null</td><td>TBCD-Null</td></tr><tr><td>Word 48, bits 8-11</td><td>DTA14</td><td>TBCD-Null</td><td>TBCD-Null</td></tr><tr><td>Word 48, bits 12-15</td><td>DTA15</td><td>TBCD-Null</td><td>TBCD-Null</td></tr></tbody></table> DTSID = Desired Termination Switch ID DTTG = Desired Termination Trunk Group			DTC DTSID + DTTG	DDD	Word 45, bits 4-7	DTA1	0	N	Word 45, bits 8-11	DTA2	X(DTSID1)	X	Word 45, bits 12-15	DTA3	X(DTSID2)	X	Word 46, bits 0-3	DTA4	X(DTSID3)	N	Word 46, bits 4-7	DTA5	0	X	Word 46, bits 8-11	DTA6	X(DTTG1)	X	Word 46, bits 12-15	DTA7	X(DTTG2)	X	Word 47, bits 0-3	DTA8	X(DTTG3)	X	Word 47, bits 4-7	DTA9	X(DTTG4)	X	Word 47, bits 8-11	DTA10	TBCD-Null	X	Word 47, bits 12-15	DTA11	TBCD-Null	TBCD-Null	Word 48, bits 0-3	DTA12	TBCD-Null	TBCD-Null	Word 48, bits 4-7	DTA13	TBCD-Null	TBCD-Null	Word 48, bits 8-11	DTA14	TBCD-Null	TBCD-Null	Word 48, bits 12-15	DTA15	TBCD-Null	TBCD-Null
		DTC DTSID + DTTG	DDD																																																														
Word 45, bits 4-7	DTA1	0	N																																																														
Word 45, bits 8-11	DTA2	X(DTSID1)	X																																																														
Word 45, bits 12-15	DTA3	X(DTSID2)	X																																																														
Word 46, bits 0-3	DTA4	X(DTSID3)	N																																																														
Word 46, bits 4-7	DTA5	0	X																																																														
Word 46, bits 8-11	DTA6	X(DTTG1)	X																																																														
Word 46, bits 12-15	DTA7	X(DTTG2)	X																																																														
Word 47, bits 0-3	DTA8	X(DTTG3)	X																																																														
Word 47, bits 4-7	DTA9	X(DTTG4)	X																																																														
Word 47, bits 8-11	DTA10	TBCD-Null	X																																																														
Word 47, bits 12-15	DTA11	TBCD-Null	TBCD-Null																																																														
Word 48, bits 0-3	DTA12	TBCD-Null	TBCD-Null																																																														
Word 48, bits 4-7	DTA13	TBCD-Null	TBCD-Null																																																														
Word 48, bits 8-11	DTA14	TBCD-Null	TBCD-Null																																																														
Word 48, bits 12-15	DTA15	TBCD-Null	TBCD-Null																																																														

Word #, Bit #	Description
	<div> <div>IDDD (example)</div> <div>DTC (future)</div> </div> <div> Word 45, bits 4-7 DTA1 CC X(DTSID1)  Word 45, bits 8-11 DTA2 CC X(DTSID2)  Word 45, bits 12-15 DTA3 CC X(DTSID3)  Word 46, bits 0-3 DTA4 NN X(DTSID4)  Word 46, bits 4-7 DTA5 NN X(DTTG1)  Word 46, bits 8-11 DTA6 NN X(DTTG2)  Word 46, bits 12-15 DTA7 NN X(DTTG3)  Word 47, bits 0-3 DTA8 NN X(DTTG4)  Word 47, bits 4-7 DTA9 NN X(DTTG5)  Word 47, bits 8-11 DTA10 NN TBCD-Null  Word 47, bits 12-15 DTA11 NN TBCD-Null  Word 48, bits 0-3 DTA12 NN TBCD-Null  Word 48, bits 4-7 DTA13 NN TBCD-Null  Word 48, bits 8-11 DTA14 NN TBCD-Null  Word 48, bits 12-15 DTA15 TBCD-Null TBCD-Null </div> <div> CC = Customer Connect  DTSID = Desired Termination Switch ID  DTTG = Desired Termination Trunk Group  NN = National Number </div>
Word 49, bits 0-6	Overflow Count (OVFC): Indicates the total number of intermediate overflow attempts before successful termination was achieved. This value is incremented each time the DAP is accessed for overflow information.
Word 49, bits 7-12	Desired Termination Action Code (DTAC): This field represents the action code which was received from the DAP in the first response. This information is used to identify the type of information which is recorded in the DTA field.
Word 49, bit 13	Not Used.
Word 49, bits 14-15 Words 50-54, bits 0-15	Network Call Identifier (NCID): Contains the binary representation of the NCID. The NCID is recorded here at intermediate and terminating switches if the Authcode field is being used to record other information. The NCID is created at the originating switch and is passed to intermediate and terminating switches. The format of the NCID is:  Originating Switch ID (OSID) Originating Trunk Group (OTG) Originating Port (OP) Timepoint 1 (TP1) NCID Sequence Number
Words 55-58, bits 0-15 Word 59, bits 0-10	Not Used.

Word #, Bit #	Description
Word 59, bits 11-13	<p>User to User Type (UUS Type): Contains a binary representation used to identify the type of User to User services being utilized. If this field is set to '0' and the UUIE Count field is set to a value other than '0', then non-call associated User to User information is being transferred.</p> <p>0 = No message or call associated UUS invoked (default)  1 = MA-UUI only  2 = CA-TSC at call setup only  3 = CA-TSC after call setup only  4 = CA-TSC at call setup and CA-TSC after call setup  5 = MA-UUI and CA-TSC at call setup  6 = MA-UUI and CA-TSC after call setup  7 = MA-UUI and CA-TSC at call setup and CA-TSC after call setup</p>
Word 59, bits 14-15 Word 60, bits 0-13	<p>User to User Information Element Count (UUIE Count): Contains the binary count of UUIE delivered in either direction per TSC. Both the originating and terminating switches shall maintain a counter to count the number of UUIE delivered on a per call basis. Each switch shall count all UUIE in either direction whether delivered or not. The billed party shall be responsible for paying for the UUIE transport. If the count reaches the maximum value of 65535, it will hold at this value until a new call record is created. The beared channel will be disconnected one the maximum count is reached.</p>
Word 60, bits 14-15	<p>Overflow Case Coding Standard (OVFCS): Contains the binary equivalent of the first coding standard received or formatted in-switch. This value is taken from the coding standard subfield in the cause parameter that initiated overflow. It will not be overwritten by subsequent coding standards received or in-switch formatted values. This field is used for enhanced overflow calls only.</p>
Word 61, bits 0-15 Word 62, bits 0-7	<p>Originating NX64 Bitmap: Records the port number that corresponds with the originating control channel of the call in the originating port in the CDR/PNR. This bitmap is used to identify the subsequent channels in the same T1 timespan that are used in the call. A particular bit is set to indicate if this channel was used on the call. The number of bits that are set is used to identify the number N in an NX64 call.</p>
Word 62, bits 8-15 Word 63, bits 0-15	<p>Terminating NX64 Bitmap: Record the port number that corresponds to the terminating control channel of the call in the terminating port in the CDR/PNR. This bitmap will be used to identify the subsequent channels in the same T1 span that are used in the call. A particular bit is set to indicate if this channel was used on the call. The number of bits that are set is used to identify the number N in an NX64 call. In general, each channel transmits at 64 Kbits/second, and if a customer needs more than one channel, this bitmap indicates which channels are used in the call.</p>

Word #, Bit #	Description
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**Table 303 OSR/POSR Record Format:**

Word 0, bits 0-3	Call Record Id (CRID): Identifies the record type.  0 = Default 1 = CDR 2 = SER 3 = PNR 4 = OSR 5 = POSR 6 = ECDR 7 = EPOSR 8 = EOSR 9 = EPOSR 10-15 = Not Used
Word 0, bits 4-15	Call Disconnect ID (CDID): Identifies the call record. Each call record has a unique ID number. These 12 bits contain the 12 least significant bits of the CDID.
Word 1, bits 0-15 Word 2, bits 0-15	Timepoint 1 (TP1): A binary count of the number of seconds that occurred between midnight (UTC) on January 1, 1976, and the time that the incoming call was detected by the switch.
Word 3, bits 0-12	Timepoint 4 (TP4): A binary count of the number of seconds between Timepoint 1 and the time the operator position was seized by the switch.
Word 3, bits 13-15 Word 4, bits 0-0	Timepoint 6 (TP6): A binary count of the number of seconds between timepoint 1 and the time Answer Supervision was detected or received. This is the time that it took for the call to be answered by the person or audio system being called.
Word 4, bits 10-15 Word 5, bits 0-15	Timepoint 7 (TP7): A binary count of the number of seconds between timepoint 1 and the time that the originating or terminating party disconnected whichever is first.
Word 6, bits 0-15 Word 7, bit 1	Originating Port (OP): The absolute port number of the originating trunk. Originating trunk is the line on which the call came to the switch.
Word 7, bits 2-15 Word 8, bits 0-1	Terminating Port (TP): The absolute port number of the last terminating trunk seized for an outgoing call attempt. The terminating trunk is the last line on which the call is transmitted.
Word 8, bits 2-14	Originating Trunk Group (OTG): A binary number expressing the Originating Trunk Group number of the originating trunk. An originating trunk group is a group of ports coming from the same location.
Word 8, bit 15 Word 9, bits 0-11	Terminating Trunk Group (TTG): A binary number expressing the Terminating Trunk Group number of the Terminating trunk. A terminating trunk group is a group of ports going to the same location. If a call falls because no trunks are available, record the last trunk group number that was attempted.

Word #, Bit #	Description
Word 9, bits 12-15	<p>Timepoint 3 qualifier (TP3Q): Contains the outpulsed call disposition qualifier which provides the telephone number of the person making the call to the person being called. The person being called needs to have signed up for the "ANI Delivery" service and have a display device for displaying the caller's telephone number.</p> <p>0 = Default  1 = ANI/CSI was delivered  2 = DNIS was delivered  3 = AN/CSI and DNIS were delivered  4-5 = Not Used  6 = NCT  7 = NCT, AN/CSI was delivered  8 = NCT, DNIS was delivered  9 = NCT, ANI/CSI and DNIS was delivered  10 = NCT Tandem  11-15 = Not Used</p>
Word 10, bits 0-1	<p>Timepoint 6 qualifier (TP6Q): Contains the answer supervision qualifier indicating the way in which the telephone call was answered.</p> <p>0 = Hardware detected an Answer  1 = Software detected Voice  2 = Not Used  3 = Operator/NARS detected an Answer</p>
Word 10, bits 2-7	<p>Action Code (AC): The switch provides an action code which indicates the type of destination address, or what type of telephone number was called, or an error code.</p> <p>0 = Default  1 = 7-digit number without overflow  2 = 7-digit number with overflow  3 = DDD number  4 = IDDD number  5 = Switch generated Action Code  6 = Incoming exclusion failure  7 = ID code failure  8 = Unexpected error occurs in the NCS/DAP  9 = Misdialed number and the NCS/DAP is unable to translate the dialed number  10 = 10-digit number without overflow  11 = 10-digit number with overflow  12 = National with overflow  13 = International with overflow  14 = ANI not found  15 = NPA-NXXX not found  16 = Pilot number not found  17 = Associated partition not found  18 = ADF format error  19 = Switch ID not found  20 = 800 number not found</p>

Word #, Bit #	Description
	21 = 800 number out of band 22 = Not Used 23 = Invalid ID code 24 = Range privilege 25 = 7-digit number not in database 26 = 10-digit exclusion feature 27 = 900 number not found 28 = 900 number out of band 29 = Not Used 30 = NCS network management blocked 31 = NCS Gate Denial 32 = FlexSTC, Overflow Not Allowed 33 = FlexSTC, Overflow Allowed 34 = SAC Number Not Found 35 = SAC Number Out of Band 36 = 700 Number Not Found 37 = 700 Number Out of Band 38 = ICR designated Out of Band 39 = NCT - Reversed call direction 40-48 = Not Used 49 = Information Call 50 = Flexible Direct Termination Call without overflow 51 = Flexible Direct Termination Call with overflow 52 = Outbound IVNet without overflow 53 = Outbound IVNet with overflow 54 = Global Switch Profile not found 55 = ANI Index Provided by DAP 56-62 = Not Used 63 = International Inbound APP
Word 10, bits 8-11	Originating Trunk Class (OTC): Indicates what type of originating trunk was accessed.  0 = ONAL (FG-A) 1 = ONAT (FG-B, FG-C, FG-D, CAMA, LAMA) 2 = DAL, VNET CAMA, FGS-DAL) 3 = IMT (Inband or SS7) 4 = International Circuit (RI, R2, #5, #6, #7) 5 = ISDN PRI 6 = OST 7-15 = Not Used
Word 10, bits 12-15	Terminating Trunk Class (TTC): Indicates what type of terminating trunk was accessed.  0 = ONAL (FG-A) 1 = ONAT (FG-B, FG-C, FG-D, CAMA, LAMA) 2 = DAL, VNET CAMA, FGS-DAL) 3 = IMT (Inband or SS7) 4 = International Circuit (R1, R2, #5, #6, #7) 5 = ISDN PRI 6 = OST 7-15 = Not Used  FG = Feature Group

Word #, Bit #	Description																		
Word 11, bits 0-7	<p>Information Digits (ID): The switch receives these digits from the originating trunk group indicating the type of telephone on which the telephone call originated, such as a home telephone, pay telephone, or prison telephone.</p> <table><tr><td></td><td>FG-B Direct, CAMA</td><td>FG-D</td><td>MCI IMT</td><td>#5</td><td>#6</td></tr><tr><td>bits 0-3: TBCD Null</td><td>X</td><td></td><td>X</td><td>TBCD Null</td><td>X</td></tr><tr><td>bits 4-7:</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td></tr></table>		FG-B Direct, CAMA	FG-D	MCI IMT	#5	#6	bits 0-3: TBCD Null	X		X	TBCD Null	X	bits 4-7:	X	X	X	X	X
	FG-B Direct, CAMA	FG-D	MCI IMT	#5	#6														
bits 0-3: TBCD Null	X		X	TBCD Null	X														
bits 4-7:	X	X	X	X	X														
Word 11, bits 8-11	<p>Originating NACC (ONACC): This field contains the North American Coding Convention code which is received in the incoming digit stream to the operator switch. This code identifies the type of assistance required for inbound international calls.</p> <p>0 = default 1 = 121 (Assistance without call completion) 2 = 131 (Directory assistance) 3 = 151 (Assistance with call completion) 4 = 160 (Manual transit) 5 = 191 (Call USA) 6-15 = Not Used</p>																		
Word 11, bits 12-15	<p>Terminating NACC (TNACC): This field contains the North American Coding Convention code which is transmitted in the incoming digit stream to another operator switch. This code identifies the type of assistance required at the next operator switch.</p> <p>0 = default 1 = 121 (Assistance without call completion) 2 = 131 (Directory assistance) 3 = 151 (Assistance with call completion) 4 = 160 (Manual transit) 5 = 191 (Call USA) 6-15 = Not Used</p>																		
Word 12, bits 0-15 Word 13, bits 0-15 Word 14, bits 0-7	<p>Call Location ID (CLI): Represents the 10 digits from where the call came. If switch receives more than 10 digits, record them in the ECDR/EPOSR.</p> <p>1. VNet CAMA DAL originations: If CSI is available, prefix the CSI with filed HNPA and HNXX information, if available, and record. Use NOCLI value of 7.</p> <p>2. FG-C originations: If ANI or CSI information is not available and the number is in the 00Y+NXX+XXXX format, record the 00Y in CLI 1-3, and record the OSID/OTG in CLI4-10. Use NOCLI value of 8.</p> <p>3. Inband FG-D Originations: Record the ANI that was received starting with CLI1. Use NOCLI value of 1.</p>																		



Word #, Bit #	Description																																														
	<p>4. SS7 FG-D Originations: Record the charge number, if available. If not available, record the calling party number. Use NOCLI value of 2 or 3.</p> <p>5. International originations: Record the country code and the national number of the calling party. Use NOCLI of 9.</p> <p>6. SS7 IMTs Originations: Record the following information in this order of importance: 1) charge number, 2) calling party number, 3) OSID/OTG from generic digits. Use NOCLI of 2, 3, or 8.</p> <p>7. SS7 Reseller Originations: The CLI field is filled with TBCD-Nulls.</p> <p>8. SS7 Private Network Originations: The CLI field is filled with TBCD-Nulls.</p> <p>9. PRI Organizations: Record the calling party number received in the ISDN setup message.</p> <p>The format:</p> <table><tr><th></th><th>1-10 digit ANI</th><th>OSID/OTG</th><th>Incoming Int'l</th></tr><tr><td>Word 12, bits 0-3</td><td>CLI1</td><td>TBCD Null</td><td>X(CC)</td></tr><tr><td>Word 12, bits 4-7</td><td>CLI2</td><td>TBCD Null</td><td>X(CC)</td></tr><tr><td>Word 12, bits 8-11</td><td>CLI3</td><td>TBCD Null</td><td>X(CC)</td></tr><tr><td>Word 12, bits 12-15</td><td>CLI4</td><td>X(OSID)</td><td>X(N)</td></tr><tr><td>Word 13, bits 0-3</td><td>CLI5</td><td>X(OSID)</td><td>X(NN)</td></tr><tr><td>Word 13, bits 4-7</td><td>CLI6</td><td>X(OSID)</td><td>X(N)</td></tr><tr><td>Word 13, bits 8-11</td><td>CLI7</td><td>X(OTG)</td><td>X(NN)</td></tr><tr><td>Word 13, bits 12-15</td><td>CLI8</td><td>X(OTG)</td><td>X(NN)</td></tr><tr><td>Word 14, bits 0-3</td><td>CLI9</td><td>X(OTG)</td><td>X(NN)</td></tr><tr><td>Word 14, bits 4-7</td><td>CLI10</td><td>X(OTG)</td><td>X(NN)</td></tr></table> <p>CC = Customer Connect NN = National Number OSID = Originating Switch NSC ID (000-999) OTG = Originating Trunk Group (0000-8191)</p>				1-10 digit ANI	OSID/OTG	Incoming Int'l	Word 12, bits 0-3	CLI1	TBCD Null	X(CC)	Word 12, bits 4-7	CLI2	TBCD Null	X(CC)	Word 12, bits 8-11	CLI3	TBCD Null	X(CC)	Word 12, bits 12-15	CLI4	X(OSID)	X(N)	Word 13, bits 0-3	CLI5	X(OSID)	X(NN)	Word 13, bits 4-7	CLI6	X(OSID)	X(N)	Word 13, bits 8-11	CLI7	X(OTG)	X(NN)	Word 13, bits 12-15	CLI8	X(OTG)	X(NN)	Word 14, bits 0-3	CLI9	X(OTG)	X(NN)	Word 14, bits 4-7	CLI10	X(OTG)	X(NN)
	1-10 digit ANI	OSID/OTG	Incoming Int'l																																												
Word 12, bits 0-3	CLI1	TBCD Null	X(CC)																																												
Word 12, bits 4-7	CLI2	TBCD Null	X(CC)																																												
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Word #, Bit #	Description																																																																																															
Word 14, bits 8-15 Word 15, bits 0-15 Word 16, bits 0-15 Word 17, bits 0-15 Word 18, bits 0-15 Word 19, bits 0-15	<p>Authorization Codes: Represents 22 digits of who gets billed for the call which includes one or more of the following and/or an optional Supplementary Code:</p> <p>1. Authorization Code - Contains the authorization code digits. AUTH1-AUTH5 records the dialed or filed authorization codes, afterwhich is recorded an optional variable 1-4 digit security code, SEC1-SEC4, comprised of TBCD digits 0-9 and A-D. After the last digit, record a TBCD-Null, afterwhich record any supplementary code digits, SUPP1-SUPP12. Record TBCD-Null in any unused byte. Authorization Code format:</p> <table><thead><tr><th></th><th>5 digit Auth Code</th><th>6 digit Auth Code</th><th>7 digit Auth Code</th></tr></thead><tbody><tr><td>Word 14, bits 8-11 A1</td><td>AUTH1</td><td>AUTH1</td><td>AUTH1</td></tr><tr><td>Word 14, bits 12-15 A2</td><td>AUTH2</td><td>AUTH2</td><td>AUTH2</td></tr><tr><td>Word 15, bits 0-3 A3</td><td>AUTH3</td><td>AUTH3</td><td>AUTH3</td></tr><tr><td>Word 15, bits 4-7 A4</td><td>AUTH4</td><td>AUTH4</td><td>AUTH4</td></tr><tr><td>Word 15, bits 8-11 A5</td><td>AUTH5</td><td>AUTH5</td><td>AUTH5</td></tr><tr><td>Word 15, bits 12-15 A6</td><td>SEC1</td><td>AUTH6</td><td>AUTH6</td></tr><tr><td>Word 16, bits 0-3 A7</td><td>SEC2</td><td>SEC1</td><td>AUTH7</td></tr><tr><td>Word 16, bits 4-7 A8</td><td>SEC3</td><td>SEC2</td><td>SEC1</td></tr><tr><td>Word 16, bits 8-11 A9</td><td>SEC4</td><td>SEC3</td><td>SEC2</td></tr><tr><td>Word 16, bits 12-15 A10</td><td>TBCD-Null</td><td>SEC4</td><td>SEC3</td></tr><tr><td>Word 17, bits 0-3 A11</td><td>SUPP1</td><td>TBCD-Null</td><td>SEC4</td></tr><tr><td>Word 17, bits 4-7 A12</td><td>SUPP2</td><td>SUPP1</td><td>TBCD-Null</td></tr><tr><td>Word 17, bits 8-11 A13</td><td>SUPP3</td><td>SUPP2</td><td>SUPP1</td></tr><tr><td>Word 17, bits 12-15 A14</td><td>SUPP4</td><td>SUPP3</td><td>SUPP2</td></tr><tr><td>Word 18, bits 0-3 A15</td><td>SUPP5</td><td>SUPP4</td><td>SUPP3</td></tr><tr><td>Word 18, bits 4-7 A16</td><td>SUPP6</td><td>SUPP5</td><td>SUPP4</td></tr><tr><td>Word 18, bits 8-11 A17</td><td>SUPP7</td><td>SUPP6</td><td>SUPP5</td></tr><tr><td>Word 18, bits 12-15 A18</td><td>SUPP8</td><td>SUPP7</td><td>SUPP6</td></tr><tr><td>Word 19, bits 0-3 A19</td><td>SUPP9</td><td>SUPP8</td><td>SUPP7</td></tr><tr><td>Word 19, bits 4-7 A20</td><td>SUPP10</td><td>SUPP9</td><td>SUPP8</td></tr><tr><td>Word 19, bits 8-11 A21</td><td>SUPP11</td><td>SUPP10</td><td>SUPP9</td></tr><tr><td>Word 19, bits 12-15 A22</td><td>SUPP12</td><td>SUPP11</td><td>SUPP10</td></tr></tbody></table>					5 digit Auth Code	6 digit Auth Code	7 digit Auth Code	Word 14, bits 8-11 A1	AUTH1	AUTH1	AUTH1	Word 14, bits 12-15 A2	AUTH2	AUTH2	AUTH2	Word 15, bits 0-3 A3	AUTH3	AUTH3	AUTH3	Word 15, bits 4-7 A4	AUTH4	AUTH4	AUTH4	Word 15, bits 8-11 A5	AUTH5	AUTH5	AUTH5	Word 15, bits 12-15 A6	SEC1	AUTH6	AUTH6	Word 16, bits 0-3 A7	SEC2	SEC1	AUTH7	Word 16, bits 4-7 A8	SEC3	SEC2	SEC1	Word 16, bits 8-11 A9	SEC4	SEC3	SEC2	Word 16, bits 12-15 A10	TBCD-Null	SEC4	SEC3	Word 17, bits 0-3 A11	SUPP1	TBCD-Null	SEC4	Word 17, bits 4-7 A12	SUPP2	SUPP1	TBCD-Null	Word 17, bits 8-11 A13	SUPP3	SUPP2	SUPP1	Word 17, bits 12-15 A14	SUPP4	SUPP3	SUPP2	Word 18, bits 0-3 A15	SUPP5	SUPP4	SUPP3	Word 18, bits 4-7 A16	SUPP6	SUPP5	SUPP4	Word 18, bits 8-11 A17	SUPP7	SUPP6	SUPP5	Word 18, bits 12-15 A18	SUPP8	SUPP7	SUPP6	Word 19, bits 0-3 A19	SUPP9	SUPP8	SUPP7	Word 19, bits 4-7 A20	SUPP10	SUPP9	SUPP8	Word 19, bits 8-11 A21	SUPP11	SUPP10	SUPP9	Word 19, bits 12-15 A22	SUPP12	SUPP11	SUPP10
	5 digit Auth Code	6 digit Auth Code	7 digit Auth Code																																																																																													
Word 14, bits 8-11 A1	AUTH1	AUTH1	AUTH1																																																																																													
Word 14, bits 12-15 A2	AUTH2	AUTH2	AUTH2																																																																																													
Word 15, bits 0-3 A3	AUTH3	AUTH3	AUTH3																																																																																													
Word 15, bits 4-7 A4	AUTH4	AUTH4	AUTH4																																																																																													
Word 15, bits 8-11 A5	AUTH5	AUTH5	AUTH5																																																																																													
Word 15, bits 12-15 A6	SEC1	AUTH6	AUTH6																																																																																													
Word 16, bits 0-3 A7	SEC2	SEC1	AUTH7																																																																																													
Word 16, bits 4-7 A8	SEC3	SEC2	SEC1																																																																																													
Word 16, bits 8-11 A9	SEC4	SEC3	SEC2																																																																																													
Word 16, bits 12-15 A10	TBCD-Null	SEC4	SEC3																																																																																													
Word 17, bits 0-3 A11	SUPP1	TBCD-Null	SEC4																																																																																													
Word 17, bits 4-7 A12	SUPP2	SUPP1	TBCD-Null																																																																																													
Word 17, bits 8-11 A13	SUPP3	SUPP2	SUPP1																																																																																													
Word 17, bits 12-15 A14	SUPP4	SUPP3	SUPP2																																																																																													
Word 18, bits 0-3 A15	SUPP5	SUPP4	SUPP3																																																																																													
Word 18, bits 4-7 A16	SUPP6	SUPP5	SUPP4																																																																																													
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Word 19, bits 0-3 A19	SUPP9	SUPP8	SUPP7																																																																																													
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Word 19, bits 12-15 A22	SUPP12	SUPP11	SUPP10																																																																																													

Word #, Bit #	Description		
2. Calling Station ID (CSI) - Contains the digits of the calling station identifier. The CSI digits will be recorded starting at A1. A TBCD-Null is recorded after the last CSI digit, followed by Supplemental Code digits. Unused bytes contain a TBCD-Null. Calling Station ID format:			
		7 digit CSI	10 digit CSI
Word 14, bits 8-11	A1	X	X
Word 14, bits 12-15	A2	X	X
Word 15, bits 0-3	A3	X	X
Word 15, bits 4-7	A4	X	X
Word 15, bits 8-11	A5	X	X
Word 15, bits 12-15	A6	X	X
Word 16, bits 0-3	A7	X	X
Word 16, bits 4-7	A8	TBCD-Null	X
Word 16, bits 8-11	A9	SUPP1	X
Word 16, bits 12-15	A10	SUPP2	X
Word 17, bits 0-3	A11	SUPP3	TBCD-Null
Word 17, bits 4-7	A12	SUPP4	SUPP1
Word 17, bits 8-11	A13	SUPP5	SUPP2
Word 17, bits 12-15	A14	SUPP6	SUPP3
Word 18, bits 0-3	A15	SUPP7	SUPP4
Word 18, bits 4-7	A16	SUPP8	SUPP5
Word 18, bits 8-11	A17	SUPP9	SUPP6
Word 18, bits 12-15	A18	SUPP10	SUPP7
Word 19, bits 0-3	A19	SUPP11	SUPP8
Word 19, bits 4-7	A20	SUPP12	SUPP9
Word 19, bits 8-11	A21	SUPP13	SUPP10
Word 19, bits 12-15	A22	SUPP14	SUPP11

Word #, Bit #	Description
	<p>3. Supplementary Codes - Supplementary Codes are recorded starting in A1. Unused bytes contain TBCD-Null. Supplementary Code format:</p> <p style="text-align: right;">800/900 VNet Supp. Codes</p> <p>Word 14, bits 8-11    A1       SUPP1  Word 14, bits 12-15   A2       SUPP2  Word 15, bits 0-3     A3       SUPP3  Word 15, bits 4-7     A4       SUPP4  Word 15, bits 8-11    A5       SUPP5  Word 15, bits 12-15   A6       SUPP6  Word 16, bits 0-3     A7       SUPP7  Word 16, bits 4-7     A8       SUPP8  Word 16, bits 8-11    A9       SUPP9  Word 16, bits 12-15   A10      SUPP10  Word 17, bits 0-3     A11      SUPP11  Word 17, bits 4-7     A12      SUPP12  Word 17, bits 8-11    A13      SUPP13  Word 17, bits 12-15   A14      SUPP14  Word 18, bits 0-3     A15      SUPP15  Word 18, bits 4-7     A16      SUPP16  Word 18, bits 8-11    A17      SUPP17  Word 18, bits 12-15   A18      SUPP18  Word 19, bits 0-3     A19      SUPP19  Word 19, bits 4-7     A20      SUPP20  Word 19, bits 8-11    A21      SUPP21  Word 19, bits 12-15   A22      SUPP22</p>

Word #, Bit #	Description
	4. VNet Remote Access - If the caller accesses VNet services through the Remote Access Service, the access number is recorded starting at A1. A TBCD-Null is recorded after the last digit followed by any Supplemental Codes. Unused bytes contain TBCD-Null. VNet Remote Access format:
Word 14, bits 8-11 A1	N
Word 14, bits 12-15 A2	X
Word 15, bits 0-3 A3	X
Word 15, bits 4-7 A4	N
Word 15, bits 8-11 A5	X
Word 15, bits 12-15 A6	X
Word 16, bits 0-3 A7	X
Word 16, bits 4-7 A8	X
Word 16, bits 8-11 A9	X
Word 16, bits 12-15 A10	X
Word 17, bits 0-3 A11	TBCD-Null
Word 17, bits 4-7 A12	SUPP1
Word 17, bits 8-11 A13	SUPP2
Word 17, bits 12-15 A14	SUPP3
Word 18, bits 0-3 A15	SUPP4
Word 18, bits 4-7 A16	SUPP5
Word 18, bits 8-11 A17	SUPP6
Word 18, bits 12-15 A18	SUPP7
Word 19, bits 0-3 A19	SUPP8
Word 19, bits 4-7 A20	SUPP9
Word 19, bits 8-11 A21	SUPP10
Word 19, bits 12-15 A22	SUPP11

Word #, Bit #	Description
	<p>5. Calling Party Number - The calling party number is recorded for SS7 FGD call originations received with a charge number and a calling party number. Record the SS7 calling party number in A1-10. A TBCD-Null is recorded after the last digit, followed by supplementary codes. Unused bytes contain TBCD-Null. Calling party number format:</p>
Word 14, bits 8-11	A1 N
Word 14, bits 12-15	A2 X
Word 15, bits 0-3	A3 X
Word 15, bits 4-7	A4 N
Word 15, bits 8-11	A5 X
Word 15, bits 12-15	A6 X
Word 16, bits 0-3	A7 X
Word 16, bits 4-7	A8 X
Word 16, bits 8-11	A9 X
Word 16, bits 12-15	A10 X
Word 17, bits 0-3	A11 TBCD-Null
Word 17, bits 4-7	A12 SUPP1
Word 17, bits 8-11	A13 SUPP2
Word 17, bits 12-15	A14 SUPP3
Word 18, bits 0-3	A15 SUPP4
Word 18, bits 4-7	A16 SUPP5
Word 18, bits 8-11	A17 SUPP6
Word 18, bits 12-15	A18 SUPP7
Word 19, bits 0-3	A19 SUPP8
Word 19, bits 4-7	A20 SUPP9
Word 19, bits 8-11	A21 SUPP10
Word 19, bits 12-15	A22 SUPP11

Word #, Bit #	Description
	6. Credit Card Number - Record the commercial credit card or presubscribed credit card number starting in A1. The PIN digits of a valid presubscribed credit card number are masked out by writing TBCD-A over the 4 PIN digits. A TBCD-Null is recorded after the last digit, followed by supplementary codes. Unused bytes contain TBCD-Null. Credit card number format:
Word 14, bits 8-11 A1	X
Word 14, bits 12-15 A2	X
Word 15, bits 0-3 A3	X
Word 15, bits 4-7 A4	X
Word 15, bits 8-11 A5	X
Word 15, bits 12-15 A6	X
Word 16, bits 0-3 A7	X
Word 16, bits 4-7 A8	X
Word 16, bits 8-11 A9	X
Word 16, bits 12-15 A10	X
Word 17, bits 0-3 A11	X
Word 17, bits 4-7 A12	X
Word 17, bits 8-11 A13	X
Word 17, bits 12-15 A14	X
Word 18, bits 0-3 A15	X
Word 18, bits 4-7 A16	X
Word 18, bits 8-11 A17	X
Word 18, bits 12-15 A18	X
Word 19, bits 0-3 A19	X
Word 19, bits 4-7 A20	TBCD-Null
Word 19, bits 8-11 A21	SUPP1
Word 19, bits 12-15 A22	SUPP2

Word #, Bit #	Description
	<p>7. 14 Digit MCI/VNet Cards - The 14 digit calling card/VNet card number is recorded starting in A1 with the last 4 PIN digits masked out by writing TBCD-A for those digits. A TBCD-Null is written after the last digit, followed by supplemental codes. Unused bytes contain TBCD-Null. Calling card/VNet card format:</p>
Word 14, bits 8-11 A1	X
Word 14, bits 12-15 A2	X
Word 15, bits 0-3 A3	X
Word 15, bits 4-7 A4	X
Word 15, bits 8-11 A5	X
Word 15, bits 12-15 A6	X
Word 16, bits 0-3 A7	X
Word 16, bits 4-7 A8	X
Word 16, bits 8-11 A9	X
Word 16, bits 12-15 A10	X
Word 17, bits 0-3 A11	TBCD-A
Word 17, bits 4-7 A12	TBCD-A
Word 17, bits 8-11 A13	TBCD-A
Word 17, bits 12-15 A14	TBCD-A
Word 18, bits 0-3 A15	TBCD-Null
Word 18, bits 4-7 A16	SUPP1
Word 18, bits 8-11 A17	SUPP2
Word 18, bits 12-15 A18	SUPP3
Word 19, bits 0-3 A19	SUPP4
Word 19, bits 4-7 A20	SUPP5
Word 19, bits 8-11 A21	SUPP6
Word 19, bits 12-15 A22	SUPP7



Word #, Bit #	Description
	<p>8. Telecommunications/PTT Cards - The 23 digits, or less, of the telecommunications card is recorded starting in A1. A TBCD-Null is recorded after the last digit, followed by supplemental codes. Unused bytes contain TBCD-Null. Telecommunications card format:</p>
	<p>Word 14, bits 8-11 A1 X</p>
	<p>Word 14, bits 12-15 A2 X</p>
	<p>Word 15, bits 0-3 A3 X</p>
	<p>Word 15, bits 4-7 A4 X</p>
	<p>Word 15, bits 8-11 A5 X</p>
	<p>Word 15, bits 12-15 A6 X</p>
	<p>Word 16, bits 0-3 A7 X</p>
	<p>Word 16, bits 4-7 A8 X</p>
	<p>Word 16, bits 8-11 A9 X</p>
	<p>Word 16, bits 12-15 A10 X</p>
	<p>Word 17, bits 0-3 A11 X</p>
	<p>Word 17, bits 4-7 A12 X</p>
	<p>Word 17, bits 8-11 A13 X</p>
	<p>Word 17, bits 12-15 A14 X</p>
	<p>Word 18, bits 0-3 A15 X</p>
	<p>Word 18, bits 4-7 A16 X</p>
	<p>Word 18, bits 8-11 A17 X</p>
	<p>Word 18, bits 12-15 A18 X</p>
	<p>Word 19, bits 0-3 A19 X</p>
	<p>Word 19, bits 4-7 A20 X</p>
	<p>Word 19, bits 8-11 A21 X</p>
	<p>Word 19, bits 12-15 A22 X</p>

Word #, Bit #	Description
	9. OSID and OTG - For international inbound VNet or SAC calls, the OSID and OTG are recorded as received from the SS7 Generic Digits parameter. After the parameters are recorded, the remaining bytes contain TBCD-Null. OSID and OTG format:
Word 14, bits 8-11 A1	X (OSID)
Word 14, bits 12-15 A2	X (OSID)
Word 15, bits 0-3 A3	X (OSID)
Word 15, bits 4-7 A4	X (OTG)
Word 15, bits 8-11 A5	X (OTG)
Word 15, bits 12-15 A6	X (OTG)
Word 16, bits 0-3 A7	X (OTG)
Word 16, bits 4-7 A8	TBCD-Null
Word 16, bits 8-11 A9	TBCD-Null
Word 16, bits 12-15 A10	TBCD-Null
Word 17, bits 0-3 A11	TBCD-Null
Word 17, bits 4-7 A12	TBCD-Null
Word 17, bits 8-11 A13	TBCD-Null
Word 17, bits 12-15 A14	TBCD-Null
Word 18, bits 0-3 A15	TBCD-Null
Word 18, bits 4-7 A16	TBCD-Null
Word 18, bits 8-11 A17	TBCD-Null
Word 18, bits 12-15 A18	TBCD-Null
Word 19, bits 0-3 A19	TBCD-Null
Word 19, bits 4-7 A20	TBCD-Null
Word 19, bits 8-11 A21	TBCD-Null
Word 19, bits 12-15 A22	TBCD-Null
	OSID = Originating Switch Group (000-999)
	OTG = Originating Trunk Group (0000-8191)

Word #, Bit #	Description
	<p>10. Business Group ID - For some SS7 trunk groups, a business group ID is received in a SS7 parameter and is recorded in A1-A6. After the last digit, a TBCD-Null is recorded followed by any supplemental codes. Unused bytes contain TBCD-Null.</p> <p>Word 14, bits 8-11 A1 X</p> <p>Word 14, bits 12-15 A2 X</p> <p>Word 15, bits 0-3 A3 X</p> <p>Word 15, bits 4-7 A4 X</p> <p>Word 15, bits 8-11 A5 X</p> <p>Word 15, bits 12-15 A6 X</p> <p>Word 16, bits 0-3 A7 TBCD-Null</p> <p>Word 16, bits 4-7 A8 SUPP1</p> <p>Word 16, bits 8-11 A9 SUPP2</p> <p>Word 16, bits 12-15 A10 SUPP3</p> <p>Word 17, bits 0-3 A11 SUPP4</p> <p>Word 17, bits 4-7 A12 SUPP5</p> <p>Word 17, bits 8-11 A13 SUPP6</p> <p>Word 17, bits 12-15 A14 SUPP7</p> <p>Word 18, bits 0-3 A15 SUPP8</p> <p>Word 18, bits 4-7 A16 SUPP9</p> <p>Word 18, bits 8-11 A17 SUPP10</p> <p>Word 18, bits 12-15 A18 SUPP11</p> <p>Word 19, bits 0-3 A19 SUPP12</p> <p>Word 19, bits 4-7 A20 SUPP13</p> <p>Word 19, bits 8-11 A21 SUPP14</p> <p>Word 19, bits 12-15 A22 SUPP15</p>
	<p>11. Network Information - For some SS7 trunk groups, a network information ID is received in a SS7 parameter and is recorded in A1-A4. After the last digit, a TBCD-Null is recorded followed by any supplemental codes. Unused bytes contain TBCD-Null.</p> <p>Word 14, bits 8-11 A1 N</p> <p>Word 14, bits 12-15 A2 X</p> <p>Word 15, bits 0-3 A3 X</p> <p>Word 15, bits 4-7 A4 N</p> <p>Word 15, bits 8-11 A5 TBCD-Null</p> <p>Word 15, bits 12-15 A6 SUPP1</p> <p>Word 16, bits 0-3 A7 SUPP2</p> <p>Word 16, bits 4-7 A8 SUPP3</p> <p>Word 16, bits 8-11 A9 SUPP4</p> <p>Word 16, bits 12-15 A10 SUPP5</p> <p>Word 17, bits 0-3 A11 SUPP6</p> <p>Word 17, bits 4-7 A12 SUPP7</p> <p>Word 17, bits 8-11 A13 SUPP8</p> <p>Word 17, bits 12-15 A14 SUPP9</p> <p>Word 18, bits 0-3 A15 SUPP10</p> <p>Word 18, bits 4-7 A16 SUPP11</p> <p>Word 18, bits 8-11 A17 SUPP12</p> <p>Word 18, bits 12-15 A18 SUPP13</p> <p>Word 19, bits 0-3 A19 SUPP14</p> <p>Word 19, bits 4-7 A20 SUPP15</p> <p>Word 19, bits 8-11 A21 SUPP16</p> <p>Word 19, bits 12-15 A22 SUPP17</p>

Word #, Bit #	Description
	<p>12. BOC Card: The BOC/LEC Card Number is recorded in A1-A10 with the remaining bytes containing TBCD-Null.</p> <p>Word 14, bits 8-11 A1 N</p> <p>Word 14, bits 12-15 A2 X</p> <p>Word 15, bits 0-3 A3 X</p> <p>Word 15, bits 4-7 A4 N</p> <p>Word 15, bits 8-11 A5 X</p> <p>Word 15, bits 12-15 A6 X</p> <p>Word 16, bits 0-3 A7 X</p> <p>Word 16, bits 4-7 A8 X</p> <p>Word 16, bits 8-11 A9 X</p> <p>Word 16, bits 12-15 A10 X</p> <p>Word 17, bits 0-3 A11 TBCD-Null</p> <p>Word 17, bits 4-7 A12 TBCD-Null</p> <p>Word 17, bits 8-11 A13 TBCD-Null</p> <p>Word 17, bits 12-15 A14 TBCD-Null</p> <p>Word 18, bits 0-3 A15 TBCD-Null</p> <p>Word 18, bits 4-7 A16 TBCD-Null</p> <p>Word 18, bits 8-11 A17 TBCD-Null</p> <p>Word 18, bits 12-15 A18 TBCD-Null</p> <p>Word 19, bits 0-3 A19 TBCD-Null</p> <p>Word 19, bits 4-7 A20 TBCD-Null</p> <p>Word 19, bits 8-11 A21 TBCD-Null</p> <p>Word 19, bits 12-15 A22 TBCD-Null</p>
	<p>13. Third Party Numbers: If a call is billed to a third party NANP number, record the number in A1-A10 with the remaining bytes containing TBCD-Null.</p> <p>Word 14, bits 8-11 A1 N</p> <p>Word 14, bits 12-15 A2 X</p> <p>Word 15, bits 0-3 A3 X</p> <p>Word 15, bits 4-7 A4 N</p> <p>Word 15, bits 8-11 A5 X</p> <p>Word 15, bits 12-15 A6 X</p> <p>Word 16, bits 0-3 A7 X</p> <p>Word 16, bits 4-7 A8 X</p> <p>Word 16, bits 8-11 A9 X</p> <p>Word 16, bits 12-15 A10 X</p> <p>Word 17, bits 0-3 A11 TBCD-Null</p> <p>Word 17, bits 4-7 A12 TBCD-Null</p> <p>Word 17, bits 8-11 A13 TBCD-Null</p> <p>Word 17, bits 12-15 A14 TBCD-Null</p> <p>Word 18, bits 0-3 A15 TBCD-Null</p> <p>Word 18, bits 4-7 A16 TBCD-Null</p> <p>Word 18, bits 8-11 A17 TBCD-Null</p> <p>Word 18, bits 12-15 A18 TBCD-Null</p> <p>Word 19, bits 0-3 A19 TBCD-Null</p> <p>Word 19, bits 4-7 A20 TBCD-Null</p> <p>Word 19, bits 8-11 A21 TBCD-Null</p> <p>Word 19, bits 12-15 A22 TBCD-Null</p>

Word #, Bit #	Description
	<p>14. International Numbers: If a call is billed to an international number, record the starting number in A1. Unused bytes contain TBCD-Null.</p> <p>Word 14, bits 8-11 A1 X (CC)  Word 14, bits 12-15 A2 X (CC)  Word 15, bits 0-3 A3 X (CC)  Word 15, bits 4-7 A4 X (NN)  Word 15, bits 8-11 A5 X (NN)  Word 15, bits 12-15 A6 X (NN)  Word 16, bits 0-3 A7 X (NN)  Word 16, bits 4-7 A8 X (NN)  Word 16, bits 8-11 A9 X (NN)  Word 16, bits 12-15 A10 X (NN)  Word 17, bits 0-3 A11 X (NN)  Word 17, bits 4-7 A12 X (NN)  Word 17, bits 8-11 A13 X (NN)  Word 17, bits 12-15 A14 X (NN)  Word 18, bits 0-3 A15 X (NN)  Word 18, bits 4-7 A16 TBCD-Null  Word 18, bits 8-11 A17 TBCD-Null  Word 18, bits 12-15 A18 TBCD-Null  Word 19, bits 0-3 A19 TBCD-Null  Word 19, bits 4-7 A20 TBCD-Null  Word 19, bits 8-11 A21 TBCD-Null  Word 19, bits 12-15 A22 TBCD-Null</p> <p>CC = Customer Connect  NN = National Number</p>

Word #, Bit #	Description
	15. LAN Sequence Numbers: If a call is handled by a LAN, and billable information cannot be transported back to the billing switch, then the LAN records all of the billable information in a Billing Detail Record (BDR) and sends back a LAN sequence number to the switch. The LAN sequence number is recorded in A1-A16 with the remaining bytes containing TBCD-Null.
Word 14, bits 8-11 A1	X
Word 14, bits 12-15 A2	X
Word 15, bits 0-3 A3	X
Word 15, bits 4-7 A4	X
Word 15, bits 8-11 A5	X
Word 15, bits 12-15 A6	X
Word 16, bits 0-3 A7	X
Word 16, bits 4-7 A8	X
Word 16, bits 8-11 A9	X
Word 16, bits 12-15 A10	X
Word 17, bits 0-3 A11	X
Word 17, bits 4-7 A12	X
Word 17, bits 8-11 A13	X
Word 17, bits 12-15 A14	X
Word 18, bits 0-3 A15	X
Word 18, bits 4-7 A16	X
Word 18, bits 8-11 A17	TBCD-Null
Word 18, bits 12-15 A18	TBCD-Null
Word 19, bits 0-3 A19	TBCD-Null
Word 19, bits 4-7 A20	TBCD-Null
Word 19, bits 8-11 A21	TBCD-Null
Word 19, bits 12-15 A22	TBCD-Null

Word #, Bit #	Description
	<p>16. DNIS: The DNIS may be recorded as received from the SS7 generic address parameter, such as with EVS/NARS processed calls.</p> <p>Word 14, bits 8-11    A1        N  Word 14, bits 12-15   A2        X  Word 15, bits 0-3     A3        X  Word 15, bits 4-7     A4        N  Word 15, bits 8-11    A5        X  Word 15, bits 12-15   A6        X  Word 16, bits 0-3     A7        X  Word 16, bits 4-7     A8        X  Word 16, bits 8-11    A9        X  Word 16, bits 12-15   A10       X  Word 17, bits 0-3     A11       TBCD-Null  Word 17, bits 4-7     A12       TBCD-Null  Word 17, bits 8-11    A13       TBCD-Null  Word 17, bits 12-15   A14       TBCD-Null  Word 18, bits 0-3     A15       TBCD-Null  Word 18, bits 4-7     A16       TBCD-Null  Word 18, bits 8-11    A17       TBCD-Null  Word 18, bits 12-15   A18       TBCD-Null  Word 19, bits 0-3     A19       TBCD-Null  Word 19, bits 4-7     A20       TBCD-Null  Word 19, bits 8-11    A21       TBCD-Null  Word 19, bits 12-15   A22       TBCD-Null</p> <p>17. Network Call Identifier (NCID): If the NCID is recorded in the "A" field, it is recorded in binary beginning with A1. The entry code will indicate the call processing associated with the particular call or '0.' If the NCID is recorded in the NCID field of a 64-word call record, the entry code will also indicate the call processing associated with the particular call or '0.' The NCID comprises the following:</p> <p>Originating Switch ID  Originating Trunk Group  Originating Port Number  Timepoint 1  NCID Sequence Number</p>

Word #, Bit #	Description																																																																																																																
Word 20, bits 0-15 Word 21, bits 0-15 Word 22, bits 0-15 Word 23, bits 0-15 Word 24, bits 0-3	<p>Destination Address: This is the seventeen digits of the destination address which is the domestic or international number being called, or an operator number format. In the POSR, if the dialed number was translated by the NCS/DAP or LAN, the translated number will be recorded. If more than 17 digits is required, use EOSR/EPOSR format. Unused bytes contain TBCD-Null.</p> <table> <tr> <th></th><th></th><th>7-digit</th><th>10-digit</th><th>DDD</th><th>IDDD</th></tr> <tr> <td>Word 20, bits 0-3</td><td>D1</td><td>N</td><td>N</td><td>N</td><td>CC</td></tr> <tr> <td>Word 20, bits 4-7</td><td>D2</td><td>X</td><td>X</td><td>X</td><td>CC</td></tr> <tr> <td>Word 20, bits 8-11</td><td>D3</td><td>X</td><td>X</td><td>X</td><td>CC</td></tr> <tr> <td>Word 20, bits 12-15</td><td>D4</td><td>X</td><td>N</td><td>N</td><td>NN</td></tr> <tr> <td>Word 21, bits 0-3</td><td>D5</td><td>X</td><td>X</td><td>X</td><td>NN</td></tr> <tr> <td>Word 21, bits 4-7</td><td>D6</td><td>X</td><td>X</td><td>X</td><td>NN</td></tr> <tr> <td>Word 21, bits 8-11</td><td>D7</td><td>X</td><td>X</td><td>X</td><td>NN</td></tr> <tr> <td>Word 21, bits 12-15</td><td>D8</td><td>X(TSID)</td><td>X</td><td>X</td><td>NN</td></tr> <tr> <td>Word 22, bits 0-3</td><td>D9</td><td>X(TSID)</td><td>X</td><td>X</td><td>NN</td></tr> <tr> <td>Word 22, bits 4-7</td><td>D10</td><td>X(TSID)</td><td>X</td><td>X</td><td>NN</td></tr> <tr> <td>Word 22, bits 8-11</td><td>D11</td><td>X(TTG)</td><td>X(TSID)</td><td>T-Null</td><td>NN</td></tr> <tr> <td>Word 22, bits 12-15</td><td>D12</td><td>X(TTG)</td><td>X(TSID)</td><td>T-Null</td><td>NN</td></tr> <tr> <td>Word 23, bits 0-3</td><td>D13</td><td>X(TTG)</td><td>X(TSID)</td><td>T-Null</td><td>NN</td></tr> <tr> <td>Word 23, bits 4-7</td><td>D14</td><td>X(TTG)</td><td>X(TTG)</td><td>T-Null</td><td>NN</td></tr> <tr> <td>Word 23, bits 8-11</td><td>D15</td><td>T-Null</td><td>X(TTG)</td><td>T-Null</td><td>NN</td></tr> <tr> <td>Word 23, bits 12-15</td><td>D16</td><td>T-Null</td><td>X(TTG)</td><td>T-Null</td><td>T-Null</td></tr> <tr> <td>Word 24, bits 0-3</td><td>D17</td><td>T-Null</td><td>X(TTG)</td><td>T-Null</td><td>T-Null</td></tr> </table> <p>CC = Customer Connect NN = National Number TSID = Terminating Switch ID TTG = Terminating Trunk Group</p>							7-digit	10-digit	DDD	IDDD	Word 20, bits 0-3	D1	N	N	N	CC	Word 20, bits 4-7	D2	X	X	X	CC	Word 20, bits 8-11	D3	X	X	X	CC	Word 20, bits 12-15	D4	X	N	N	NN	Word 21, bits 0-3	D5	X	X	X	NN	Word 21, bits 4-7	D6	X	X	X	NN	Word 21, bits 8-11	D7	X	X	X	NN	Word 21, bits 12-15	D8	X(TSID)	X	X	NN	Word 22, bits 0-3	D9	X(TSID)	X	X	NN	Word 22, bits 4-7	D10	X(TSID)	X	X	NN	Word 22, bits 8-11	D11	X(TTG)	X(TSID)	T-Null	NN	Word 22, bits 12-15	D12	X(TTG)	X(TSID)	T-Null	NN	Word 23, bits 0-3	D13	X(TTG)	X(TSID)	T-Null	NN	Word 23, bits 4-7	D14	X(TTG)	X(TTG)	T-Null	NN	Word 23, bits 8-11	D15	T-Null	X(TTG)	T-Null	NN	Word 23, bits 12-15	D16	T-Null	X(TTG)	T-Null	T-Null	Word 24, bits 0-3	D17	T-Null	X(TTG)	T-Null	T-Null
		7-digit	10-digit	DDD	IDDD																																																																																																												
Word 20, bits 0-3	D1	N	N	N	CC																																																																																																												
Word 20, bits 4-7	D2	X	X	X	CC																																																																																																												
Word 20, bits 8-11	D3	X	X	X	CC																																																																																																												
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Word 22, bits 0-3	D9	X(TSID)	X	X	NN																																																																																																												
Word 22, bits 4-7	D10	X(TSID)	X	X	NN																																																																																																												
Word 22, bits 8-11	D11	X(TTG)	X(TSID)	T-Null	NN																																																																																																												
Word 22, bits 12-15	D12	X(TTG)	X(TSID)	T-Null	NN																																																																																																												
Word 23, bits 0-3	D13	X(TTG)	X(TSID)	T-Null	NN																																																																																																												
Word 23, bits 4-7	D14	X(TTG)	X(TTG)	T-Null	NN																																																																																																												
Word 23, bits 8-11	D15	T-Null	X(TTG)	T-Null	NN																																																																																																												
Word 23, bits 12-15	D16	T-Null	X(TTG)	T-Null	T-Null																																																																																																												
Word 24, bits 0-3	D17	T-Null	X(TTG)	T-Null	T-Null																																																																																																												
		BOC Inward Dialing	Op-to-Op Domestic/ Int'l	Op-to-Op Manual Transit																																																																																																													
Word 20, bits 0-3	D1	N	X(CC)	X(CC)																																																																																																													
Word 20, bits 4-7	D2	0/1	X(CC)	X(CC)																																																																																																													
Word 20, bits 8-11	D3	X	X(CC)	X(CC)																																																																																																													
Word 20, bits 12-15	D4	X(ATC)	TBCD-Null	1																																																																																																													
Word 21, bits 0-3	D5	X(ATC)	TBCD-Null	6																																																																																																													
Word 21, bits 4-7	D6	X(ATC)	TBCD-Null	0																																																																																																													
Word 21, bits 8-11	D7	X(S11)	TBCD-Null	TBCD-Null																																																																																																													
Word 21, bits 12-15	D8	X(S12)	TBCD-Null	TBCD-Null																																																																																																													
Word 22, bits 0-3	D9	X(S13)	TBCD-Null	TBCD-Null																																																																																																													
Word 22, bits 4-7	D10	X(S14)	TBCD-Null	TBCD-Null																																																																																																													
Word 22, bits 8-11	D11	X(S15)	TBCD-Null	TBCD-Null																																																																																																													
Word 22, bits 12-15	D12	TBCD-Null	TBCD-Null	TBCD-Null																																																																																																													
Word 23, bits 0-3	D13	TBCD-Null	TBCD-Null	TBCD-Null																																																																																																													
Word 23, bits 4-7	D14	TBCD-Null	TBCD-Null	TBCD-Null																																																																																																													
Word 23, bits 8-11	D15	TBCD-Null	TBCD-Null	TBCD-Null																																																																																																													
Word 23, bits 12-15	D16	TBCD-Null	TBCD-Null	TBCD-Null																																																																																																													
Word 24, bits 0-3	D17	TBCD-Null	TBCD-Null	TBCD-Null																																																																																																													
Word 24, bits 4-15 Word 25, bits 0-1	Operator ID Number (OPIN): Contains the operator id number of the operator that handled the call.																																																																																																																



Word #, Bit #	Description
Word 25, bit 2	Not Used.
Word 25, bits 3-15	Timepoint 5 (TP5): A binary count of the number of seconds between the time TP1 occurred and the time that the operator stopped handling the call and releases the position. If the call is transferred to other operators, the value contained in this field shall express the release time of the last operator providing the service.
Word 26, bits 0-15	Room Number (RN): Contains the last four digits of the Calling Station ID (CSI) when a call originates from a hotel, a university, or any other community identified by only a main telephone number. The CSI shall be obtained from the originating signalling information, or verbally by the operator who enters the information manually into the OSR.
Word 27, bits 0-3	<p>Feature Code (FC): The switch determines a feature code for the call which indicates whether a specific type of data line is required for the call such as a higher quality line for facsimile transmissions.</p> <p>0 = Default  1 = FAX  2 = NARS  3 = Data Call  4 = Switched DS1 (HSCS)  5 = Switched DS3 (HSCS)  6-8 = Not Used  9 = NX64  10 = Offnet Routing  11 = AAP Call (Used in Gateway Toll Ticket Conversion)  12 = Card Gate Denial  13 = Forum Dial out audio/video conference  14 = Concert Freephone  15 = Not Used</p>
Word 27, bits 4-7	<p>Terminating Network Code (TNC): Indicates the terminating facilities to be used for the remainder of the path of the call. For example, an indicator for no satellite transmission.</p> <p>0 = Default  1 = No Routing Restrictions  2 = Avoid Satellite  3 = Route via DS1  4 = Route via DS1 and avoid satellite  5 = Route via Protected Facilities Required  6 = Route via Protected Facilities Preferred  7-15 = Not Used</p>

Word #, Bit #	Description
Word 27, bits 8-11	<p>Network Access Type (NAT): Indicates which type of network access was used as defined at the originating switch on the network; that is, how the caller gained access to the network. The types of access are:</p> <p>0 = Default  1 = 800 call  2 = Credit Card Access  3 = Operator Assistance Access  4 = VNET Remote Access  5 = Billed party preference (BPP) Access  6 = FGD Cut-Through Access  7-15 = Not Used</p>
Word 27, bits 12-15	<p>Timepoint 7 Qualifier (TP7Q): Contains the call's first disconnect qualifier; that is, how the call was terminated. The types of disconnection are:</p> <p>0 = Calling party disconnects  1 = Called party disconnects  2 = Calling party reorigination  3 = Switch initiated (ex. switch error cut off the call)  4 = All Routes Busy  5 = Disconnected due to a long ring; ring timer exceeded  6-15 = Not Used</p>
Word 28, bits 0-6	<p>Entry Code (EC): Indicates the type of call processing that took place and what type of information is recorded in the Authorization Code field. If more than one entry code is received, record the last one. The following codes are valid:</p>

Word #, Bit #	Description
	<ul style="list-style-type: none"> <li>0 = Default</li> <li>1 = Person-to-Person (P-P)</li> <li>2 = Station-to-Station (S-S)</li> <li>3 = Third Party Billing (3rd party number recorded)</li> <li>4 = P-P collect (bill to called party)</li> <li>5 = S-S collect (bill to called party)</li> <li>6 = MCI card or VNet card (S-S)</li> <li>7 = BOC inward dialing without call completion</li> <li>8 = general assistance</li> <li>9 = BOC/LEC card</li> <li>10 = Presubscribed credit card</li> <li>11 = PTT card</li> <li>12 = Directory Assistance</li> <li>13 = Commercial Credit Card</li> <li>14 = BOC inward dialing with call completion</li> <li>15 = MCI card or VNet card (P-P)</li> <li>16-19 = Not Used</li> <li>20 = ANI validation (screened pass/fail)</li> <li>21 = Auth Validation (filed or dialed)</li> <li>22 = Not Used</li> <li>23 = 700 Service Access Code (overrides #20)</li> <li>24 = 500, 800 Service Access Code (overrides #20)</li> <li>25 = 900 Service Access Code (overrides #20)</li> <li>26-28 = Not Used</li> <li>29 = Operator Release Timer Expired</li> <li>30 = EVS/NARS - Disconnect message referral (DMR) without referral</li> <li>31 = EVS/NARS - DMR with referral to MCI number</li> <li>32 = EVS/NARS - DMR with referral to non-MCI number</li> <li>33 = EVS/NARS - DMR with referral and call extension (CE) to MCI number</li> <li>34 = EVS/NARS - DMR with referral and CE to non-MCI number</li> <li>35 = EVS/NARS - Customized Message Announcement (CMA) with CE</li> </ul>

Word #, Bit #	Description
	<p> 36 = EVS/NARS - CMA without CE  37 = EVS/NARS - Enhanced Call Routing (ECR)  38-41 = EVS/NARS - Reserved  42-47 = Not Used  48 = GETS card  49 = Not Used  50 = Billed to international number  51 = Calling station ID information recorded  52 = Supplemental code only recorded  53 = VNet remote access number recorded  54 = SS7 calling party number recorded  55 = OSID and OTG recorded  56 = DNIS recorded  57 = Business group ID recorded  58 = Network information recorded  59 = BG + Null + OSID/OTG  60 = Card Number + Null + OSID/OTG  61 = VNet RA + Null + OSID/OTG  62 = VNet RA + Null + OSID/OTG  63 = Network Call Transfer (NCT)  64-79 = Reserved  80-89 = Reserved  90-99 = Reserved  100 = 18C It's Me PIN S/S  101 = 18C It's Me Global S/S  102 = 18C It's Me ANI S/S  103 = 18C It's Me NPA S/S  104 = 18C Messenger S/S  105 = 18C Messenger PIN S/S  106 = 18C Messenger Global S/S  107 = 18C BOC Card S/S  108 = 18C MCI Card S/S  109 = AOS Messenger S/S  110 = International Messenger  111 = International Speed Dial  112-127 = Not Used </p>
Word 28, bits 7-9	<p>Prefix Digits (PD): Represents the prefix digits of the called number. These digits tell the switch how to process the call.</p> <p> 0 = No prefix digits received  1 = 0- (operator assisted)  2 = 0+ (domestic CDOS)  3 = 01+ (international CDOS)  4 = 01 1+IDDD  5 = 1+DDD  6 = 0+operator assisted, subscriber address  7 = *XX where XX = 0-9, Star Card </p>

Word #, Bit #	Description
Word 28, bits 10-12	<p>NDID (NCS/DAP ID): Indicates whether the switch processed the call or if one of the databases, such as NCS/DAP, was queried for information for services, including but not limited to, VNET, Calling Card, 800, and 900 calls. The NDID further indicates the ID of the NCS/DAP that was involved in the last transaction attempt.</p> <p>0 = Switch call processing  1 = NCS/DAP 1  2 = NCS/DAP 2  3 = NCS/DAP 3  4-5 = Not Used  6 = Received from operator platform via RLT  7 = TCAP to NCS/DAP</p>
Word 28, bits 13-15	<p>Division ID (DIVID): Contains the division ID for credit card calls, including the telecommunication system's card. The DIVID is received from the NCS/DAP for the card number validation. If no information is received by the switch, record the default value of '0.'</p> <p>0 = No division ID specified  1 = Division ID1  2 = Division ID2  3 = Division ID3  4 = Division ID4  5 = Division ID5  6 = Division ID6  7 = Division ID7</p>
Word 29, bit 0	Distant Overflow (DO): When set to 1 in the originating switch's call record, indicates that a direct termination overflow (DTO) transaction was attempted at an intermediate or terminating switch in order to get the final destination address digits for this call.
Word 29, bit 1	Not Used.
Word 29, bit 2	<p>Customer Connect (CC): Indicates whether to use timepoint 6 or timepoint 3 to calculate the call duration.</p> <p>0 = Use Time Point 6, *F to calculate the call duration  1 = Use Time Point 3, *C to calculate the call duration</p>
Word 29, bit 3	Inter-Network (IN): Indicates whether or not a call is originating from one customer/network and is terminating to a different customer/network. The default setting = 0; bit set to 1 if a business group or Netinfo parameter is received from the NCS/DAP.
Word 29, bit 4	Not Used
Word 29, bit 5	SAC Bit (SC): This bit is used for the Flexible SAC feature. This bit will be set to "1" whenever the received number which is collected during the address digit collection phase, is identified as a SAC number in the FlexSac Index associated with the originating trunk group. This bit will be set to "0" in all other cases.

Word #, Bit #	Description
Word 29, bit 6	<p>Call Direction (CD): Indicates whether the call originated in the domestic or international network.</p> <p>0 = Call origination occurred in the Domestic Network 1 = Call origination occurred in the International Network</p>
Word 29, bit 7	<p>Destination (DE): Indicates when a call is expected to terminate to an international destination.</p> <p>0 = Default, NANP, Domestic VNet, or any other calls which are not expected to terminate to an international destination 1 = Calls expected to terminate to an international destination</p>
Word 29, bit 8	<p>Dedicated Termination (DT): Indicates that a 10-digit shared network number was completed to a dedicated destination. If the terminating trunk class (TTC) in the call record is equal to 3 or 7, then it is considered to be a direct termination trunk.</p>
Word 29, bit 9	<p>Person-to-Person (PP): This bit is set to 1 if the operator authorizes a person-to-person call. This bit is used in combination with the entry codes to determine the nature of the call.</p>
Word 29, bit 10	<p>Transferred Bit (XB): This bit is set to 1 if the call has been transferred from one operator position or ARU to another.</p>
Word 29, bit 11	<p>Satellite (SA): Indicates that a satellite circuit was involved in the call. The default setting is 0; bit set to 1 indicates that a satellite was involved in the call. The bit is set when the incoming trunk group is classmarked as satellite equipped, when the SAT digit on an incoming inband IMT call shows that a satellite circuit is involved in the connection, or when the SS7 Nature of Connection parameter indicates that a satellite trunk was previously used. This is used for trouble-shooting purposes, and not for billing.</p>
Word 29, bits 12-15	<p>Nature Of Calling Location ID (NOCLI): A binary value that identifies what data is recorded in the Call Location ID. The Calling Location ID field will contain the information that is referenced in the NOCLI.</p> <p>0 = Not Used 1 = ANI from Inbound trunk 2 = SS7 charge number 3 = SS7 calling party number 4 = original called number 5 = Pseudo ANI created at this switch 6 = CSI from originating trunk 7 = Filed NPA-NXX trunk group information plus CSI 8 = NNN+OSID+OTG or 00Y+OSID+OTG (N = TBCD-Null) 9 = Country Code + national number 10 = No CLI record 11 = Redirecting Number 12 = CLI received from Operator platform via RLT 13 = ANI of NCT Originator 14-15 = Not Used</p>

Word #, Bit #	Description																																								
Word 30, bits 0-15	<p>Carrier Number (CN): Represents the carrier number provided on FG-B or FG-D originations, or the carrier number received over an SS7 IMT. If only three digits are used, then they are recorded in CN2-CN4 and CN1 will contain a TBCD-Null. This field also contains the last four digits of the specific 800 number assigned to VISA cards (9595). It will also contain the last four digits of the MCI card access number regardless of the access facility. Examples of carrier numbers are: MCI = 222, ATT = 288, and Friends = 333.</p> <table><tr><th></th><th>FGB/FGD 3 digit CIC</th><th>FGB/D 4 digit CIC</th><th>visa card</th></tr><tr><td>Word 30, bits 0-3 CN1 Null</td><td></td><td>X</td><td>9</td></tr><tr><td>Word 30, bits 4-7 CN2 X</td><td></td><td>X</td><td>5</td></tr><tr><td>Word 30, bits 8-11 CN3 X</td><td></td><td>X</td><td>9</td></tr><tr><td>Word 30, bits 12-15 CN4 X</td><td></td><td>X</td><td>5</td></tr></table> <table><tr><th></th><th>SS7 TNS</th><th>MCI card</th><th>VNet card</th></tr><tr><td>Word 30, bits 0-3 CN1 X</td><td></td><td>1</td><td>1</td></tr><tr><td>Word 30, bits 4-7 CN2 X</td><td></td><td>0</td><td>1</td></tr><tr><td>Word 30, bits 8-11 CN3 X</td><td></td><td>2</td><td>1</td></tr><tr><td>Word 30, bits 12-15 CN4 X</td><td></td><td>2</td><td>1</td></tr></table>		FGB/FGD 3 digit CIC	FGB/D 4 digit CIC	visa card	Word 30, bits 0-3 CN1 Null		X	9	Word 30, bits 4-7 CN2 X		X	5	Word 30, bits 8-11 CN3 X		X	9	Word 30, bits 12-15 CN4 X		X	5		SS7 TNS	MCI card	VNet card	Word 30, bits 0-3 CN1 X		1	1	Word 30, bits 4-7 CN2 X		0	1	Word 30, bits 8-11 CN3 X		2	1	Word 30, bits 12-15 CN4 X		2	1
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Word 30, bits 12-15 CN4 X		2	1																																						
Word 31, bits 0-3	<p>Authorization Code ID Field (ACIF): Contains the Authorization Code Identification Field for recording a card number status. This field indicates whether the card number (calling card or credit card) is good or bad.</p> <p>0 = Seven digit authcode file 1 = 1st or only five digit authcode file 2 = 2nd five digit file 3 = 3rd five digit file 4 = 4th five digit file 5 = 5th five digit file 6 = Six digit authcode file 7 = Range restriction failure (invalid address digits) 8 = Positive Commercial Credit Card/89 Card/M Card Validation 9 = Not Used 10 = MCI Card/Visa Card invalid or not assigned. Disallowed. 11 = BOC billing number assigned but blocked 12 = BOC billing number usage exceeded 13 = Not Used 14 = Default authorization of MCI Card/VISA Card if response timeout from NCS/DAP 15 = MCI Card/VISA Card authorized by NCS/DAP</p>																																								

Word #, Bit #	Description
Word 31, bits 4-10	<p>Release Code: Used with timepoint 7 qualifier to determine from which direction the release message came. The code indicates why one of the parties hung up, for example, normal release = 16, and no circuit available = 34.</p> <p>1 = Unallocated number  2 = No route to specified network  3 = No route to destination  4 = Send special information tone  5 = Misdialed trunk prefix  16 = Normal clearing  17 = User Busy  18 = No user responding  19 = No user responding (user alerted)  21 = Call rejected</p>
	<p>22 = Number changed  27 = Destination out of service  28 = Address incomplete  29 = Facility rejected  31 = Normal - unspecified  34 = No circuit available  38 = Network out of order  41 = Temporary failure  42 = Switching equipment congestion  44 = Requested channel not available  47 = Resource unavailable - unspecified  50 = Requested facility not subscribed  55 = Incoming calls barred within CUG  57 = Bearer capability not authorized  58 = Bearer capability not available  63 = Service or option not available  65 = Bearer capability not implemented  69 = Requested facility not implemented  70 = Only restricted digital information bearer capability is available  79 = Service or option not implemented  87 = Called user not member of CUG  88 = Incompatible destination  91 = Invalid transit network selector  95 = Invalid message - unspecified  97 = Message type non-existent or not implemented  99 = Parameter non-existent or not implemented - discarded  102 = Recovery on timer expired  103 = Parameter non-existent or not implemented - passed on  111 = Protocol error - unspecified  127 = Interworking - unspecified</p>
Word 31, bits 11-13	<p>NCID Sequence Number: Represents the number of calls which have occurred on the same port number with the same Timepoint 1 value. The first call will have the sequence number set to '0'. This value will increase incrementally for each successive call which originates on the same port number which has the same Timepoint 1 value. Range = 0-7.</p>



Word #, Bit #	Description
Word 31, bit 14	<p>NCID Location (NCIDLOC): This bit identifies when the NCID is recorded in the Authcode field of the call record. The NCID is recorded in the Authcode field of the call record at intermediate and terminating switches if the Authcode field is not being used to record other information. If the Authcode field is being used to record other information, the NCID is recorded in the "NCID" field of the 64 word call record.</p> <p>0 = NCID is not recorded in the Authcode field (default) 1 = NCID is recorded in the Authcode field</p>
Word 31, bit 15	<p>Remote ANI Screened (RS): This bit is set to '1' if the NPA of the ANI is not listed in the switch's Local-Service-Area table, and the ANI was sent to the DAP for ANI index screening purposes. This bit is set to '0' if the switch sent the ANI to the DAP for ANI index screening purposes and no response is received from the DAP or if normal switch ANI screening occurs.</p> <p>0 = ANI was not screened by the DAP (default) 1 = ANI was screened by the DAP</p>
Words 0-11, bits 0-15	Same as OSR/POSR format.
Word 12, bits 0-15 Word 13, bits 0-15 Word 14, bits 0-15 Word 15, bits 0-11	<p>Calling Location ID: Contains 1-15 digits of the originating station line. This is the ANI number of the calling party. If 1 to 15 ANI or CSI digits are received, they are recorded in order starting with CLI1. Unused bytes contain TBCD-Null. If no ANI or CSI is available, record the OSID/OTG in CLI4-10, except where noted. If nothing is recorded in the CLI field, use a NOCLI value of 10. This field contains 1 of the following nine formats:</p> <ol style="list-style-type: none"> <li>1. VNet CAMA DAL originations: If CSI is available, prefix the CSI with filed HNPA and HNXX information, if available, and record. Use NOCLI value of 7.</li> <li>2. FG-C Originations: If ANI or CSI information is not available and the number is in the 00Y+NXX-XXXX format, record the 00Y code that was received in CLI1-3, and record the OSID/OTG in CLI4-10. Use NOCLI value of 8.</li> <li>3. Inband FG-D Originations: Record the ANI that was received starting with CLI1. Use NOCLI value of 1.</li> <li>4. SS7 FG-D Originations: Record the charge number, if available. If the charge number is not available, record the calling party number. Use NOCLI value of 2 or 3.</li> <li>5. International Originations: Record the country code and national number of the calling party. Use NOCLI value of 9.</li> <li>6. SS7 IMTs Originations: Record the following information in this order of importance: 1) charge number, 2) calling party number, 3) OSID/OTG from generic digits. Use NOCLI value of 2, 3, or 8.</li> <li>7. SS7 Reseller Originations: The CLI field will be filled with TBCD Nulls.</li> </ol>

Word #, Bit #	Description																																																																																				
	<p>8. SS7 Private Network Originations: The CLI field will be filled with TBCD Nulls.</p> <p>9. PRI Originations: Record the calling party number received in the ISDN setup message.</p> <p>The format:</p> <table><thead><tr><th></th><th></th><th>1-15 digit ANI/CSI (13 digit example)</th><th>OSID/OTG</th><th>Incoming Int'l</th></tr></thead><tbody><tr><td>Word 12, bits 0-3</td><td>CLI1</td><td>X</td><td>TBCD-Null</td><td>X(CC)</td></tr><tr><td>Word 12, bits 4-7</td><td>CLI2</td><td>X</td><td>TBCD-Null</td><td>X(CC)</td></tr><tr><td>Word 12, bits 8-11</td><td>CLI3</td><td>X</td><td>TBCD-Null</td><td>X(CC)</td></tr><tr><td>Word 12, bits 12-15</td><td>CLI4</td><td>X</td><td>X(OSID)</td><td>X(NN)</td></tr><tr><td>Word 13, bits 0-3</td><td>CLI5</td><td>X</td><td>X(OSID)</td><td>X(NN)</td></tr><tr><td>Word 13, bits 4-7</td><td>CLI6</td><td>X</td><td>X(OSID)</td><td>X(NN)</td></tr><tr><td>Word 13, bits 8-11</td><td>CLI7</td><td>X</td><td>X(OTG)</td><td>X(NN)</td></tr><tr><td>Word 13, bits 12-15</td><td>CLI8</td><td>X</td><td>X(OTG)</td><td>X(NN)</td></tr><tr><td>Word 14, bits 0-3</td><td>CLI9</td><td>X</td><td>X(OTG)</td><td>X(NN)</td></tr><tr><td>Word 14, bits 4-7</td><td>CLI10</td><td>X</td><td>X(OTG)</td><td>X(NN)</td></tr><tr><td>Word 14, bits 8-11</td><td>CLI11</td><td>X</td><td>TBCD-Null</td><td>X(NN)</td></tr><tr><td>Word 14, bits 12-15</td><td>CLI12</td><td>X</td><td>TBCD-Null</td><td>X(NN)</td></tr><tr><td>Word 15, bits 0-3</td><td>CLI13</td><td>X</td><td>TBCD-Null</td><td>X(NN)</td></tr><tr><td>Word 15, bits 4-7</td><td>CLI14</td><td>TBCD-Null</td><td>TBCD-Null</td><td>X(NN)</td></tr><tr><td>Word 15, bits 8-11</td><td>CLI15</td><td>TBCD-Null</td><td>TBCD-Null</td><td>X(NN)</td></tr></tbody></table> <p>CC = Customer Connect NN = National Number OSID = Originating Switch ID OTG = Originating Trunk Group</p>							1-15 digit ANI/CSI (13 digit example)	OSID/OTG	Incoming Int'l	Word 12, bits 0-3	CLI1	X	TBCD-Null	X(CC)	Word 12, bits 4-7	CLI2	X	TBCD-Null	X(CC)	Word 12, bits 8-11	CLI3	X	TBCD-Null	X(CC)	Word 12, bits 12-15	CLI4	X	X(OSID)	X(NN)	Word 13, bits 0-3	CLI5	X	X(OSID)	X(NN)	Word 13, bits 4-7	CLI6	X	X(OSID)	X(NN)	Word 13, bits 8-11	CLI7	X	X(OTG)	X(NN)	Word 13, bits 12-15	CLI8	X	X(OTG)	X(NN)	Word 14, bits 0-3	CLI9	X	X(OTG)	X(NN)	Word 14, bits 4-7	CLI10	X	X(OTG)	X(NN)	Word 14, bits 8-11	CLI11	X	TBCD-Null	X(NN)	Word 14, bits 12-15	CLI12	X	TBCD-Null	X(NN)	Word 15, bits 0-3	CLI13	X	TBCD-Null	X(NN)	Word 15, bits 4-7	CLI14	TBCD-Null	TBCD-Null	X(NN)	Word 15, bits 8-11	CLI15	TBCD-Null	TBCD-Null	X(NN)
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Word 15, bits 4-7	CLI14	TBCD-Null	TBCD-Null	X(NN)																																																																																	
Word 15, bits 8-11	CLI15	TBCD-Null	TBCD-Null	X(NN)																																																																																	
Word 15, bits 12-15 Word 16, bits 0-15 Word 17, bits 0-15 Word 18, bits 0-15 Word 19, bits 0-15 Word 20, bits 0-15 Word 21, bits 0-15 Word 22, bits 0-15 Word 23, bits 0-15 Word 24, bits 0-15 Word 25, bits 0-15 Word 26, bits 0-15	<p>Authorization Code (Auth Code): Same as OSR/POSR format Auth Code, but represents 45 digits.</p> <p>1. Authorization Codes:</p> <table><thead><tr><th></th><th></th><th>5 digit</th><th>6 digit</th><th>7 digit</th></tr></thead><tbody><tr><td>Word 15, bits 12-15</td><td>A1</td><td>AUTH1</td><td>AUTH1</td><td>AUTH1</td></tr><tr><td>Word 16, bits 0-3</td><td>A2</td><td>AUTH2</td><td>AUTH2</td><td>AUTH2</td></tr><tr><td>Word 16, bits 4-7</td><td>A3</td><td>AUTH3</td><td>AUTH3</td><td>AUTH3</td></tr><tr><td>Word 16, bits 8-11</td><td>A4</td><td>AUTH4</td><td>AUTH4</td><td>AUTH4</td></tr><tr><td>Word 16, bits 12-15</td><td>A5</td><td>AUTH5</td><td>AUTH5</td><td>AUTH5</td></tr><tr><td>Word 17, bits 0-3</td><td>A6</td><td>SEC1</td><td>AUTH6</td><td>AUTH6</td></tr><tr><td>Word 17, bits 4-7</td><td>A7</td><td>SEC2</td><td>SEC1</td><td>AUTH7</td></tr><tr><td>Word 17, bits 8-11</td><td>A8</td><td>SEC3</td><td>SEC2</td><td>SEC1</td></tr><tr><td>Word 17, bits 12-15</td><td>A9</td><td>SEC4</td><td>SEC3</td><td>SEC2</td></tr><tr><td>Word 18, bits 0-3</td><td>A10</td><td>T-Null</td><td>SEC4</td><td>SEC3</td></tr><tr><td>Word 18, bits 4-7</td><td>A11</td><td>SUPP1</td><td>T-Null</td><td>SEC4</td></tr><tr><td>Word 18, bits 8-11</td><td>A12</td><td>SUPP2</td><td>SUPP1</td><td>T-Null</td></tr><tr><td>Word 18, bits 12-15</td><td>A13</td><td>SUPP3</td><td>SUPP2</td><td>SUPP1</td></tr></tbody></table>							5 digit	6 digit	7 digit	Word 15, bits 12-15	A1	AUTH1	AUTH1	AUTH1	Word 16, bits 0-3	A2	AUTH2	AUTH2	AUTH2	Word 16, bits 4-7	A3	AUTH3	AUTH3	AUTH3	Word 16, bits 8-11	A4	AUTH4	AUTH4	AUTH4	Word 16, bits 12-15	A5	AUTH5	AUTH5	AUTH5	Word 17, bits 0-3	A6	SEC1	AUTH6	AUTH6	Word 17, bits 4-7	A7	SEC2	SEC1	AUTH7	Word 17, bits 8-11	A8	SEC3	SEC2	SEC1	Word 17, bits 12-15	A9	SEC4	SEC3	SEC2	Word 18, bits 0-3	A10	T-Null	SEC4	SEC3	Word 18, bits 4-7	A11	SUPP1	T-Null	SEC4	Word 18, bits 8-11	A12	SUPP2	SUPP1	T-Null	Word 18, bits 12-15	A13	SUPP3	SUPP2	SUPP1										
		5 digit	6 digit	7 digit																																																																																	
Word 15, bits 12-15	A1	AUTH1	AUTH1	AUTH1																																																																																	
Word 16, bits 0-3	A2	AUTH2	AUTH2	AUTH2																																																																																	
Word 16, bits 4-7	A3	AUTH3	AUTH3	AUTH3																																																																																	
Word 16, bits 8-11	A4	AUTH4	AUTH4	AUTH4																																																																																	
Word 16, bits 12-15	A5	AUTH5	AUTH5	AUTH5																																																																																	
Word 17, bits 0-3	A6	SEC1	AUTH6	AUTH6																																																																																	
Word 17, bits 4-7	A7	SEC2	SEC1	AUTH7																																																																																	
Word 17, bits 8-11	A8	SEC3	SEC2	SEC1																																																																																	
Word 17, bits 12-15	A9	SEC4	SEC3	SEC2																																																																																	
Word 18, bits 0-3	A10	T-Null	SEC4	SEC3																																																																																	
Word 18, bits 4-7	A11	SUPP1	T-Null	SEC4																																																																																	
Word 18, bits 8-11	A12	SUPP2	SUPP1	T-Null																																																																																	
Word 18, bits 12-15	A13	SUPP3	SUPP2	SUPP1																																																																																	

Word #, Bit #	Description				
	Word 19, bits 0-3	A14	SUPP4	SUPP3	SUPP2
	Word 19, bits 4-7	A15	SUPP5	SUPP4	SUPP3
	Word 19, bits 8-11	A16	SUPP6	SUPP5	SUPP4
	Word 19, bits 12-15	A17	SUPP7	SUPP6	SUPP5
	Word 20, bits 0-3	A18	SUPP8	SUPP7	SUPP6
	Word 20, bits 4-7	A19	SUPP9	SUPP8	SUPP7
	Word 20, bits 8-11	A20	SUPP10	SUPP9	SUPP8
	Word 20, bits 12-15	A21	SUPP11	SUPP10	SUPP9
	Word 21, bits 0-3	A22	SUPP12	SUPP11	SUPP10
	Word 21, bits 4-7	A23	SUPP13	SUPP12	SUPP11
	Word 21, bits 8-11	A24	SUPP14	SUPP13	SUPP12
	Word 21, bits 12-15	A25	SUPP15	SUPP14	SUPP13
	Word 22, bits 0-3	A26	SUPP16	SUPP15	SUPP14
	Word 22, bits 4-7	A27	SUPP17	SUPP16	SUPP15
	Word 22, bits 8-11	A28	SUPP18	SUPP17	SUPP16
	Word 22, bits 12-15	A29	SUPP19	SUPP18	SUPP17
	Word 23, bits 0-3	A30	SUPP20	SUPP19	SUPP18
	Word 23, bits 4-7	A31	SUPP21	SUPP20	SUPP19
	Word 23, bits 8-11	A32	SUPP22	SUPP21	SUPP20
	Word 23, bits 12-15	A33	SUPP23	SUPP22	SUPP21
	Word 24, bits 0-3	A34	SUPP24	SUPP23	SUPP22
	Word 24, bits 4-7	A35	SUPP25	SUPP24	SUPP23
	Word 24, bits 8-11	A36	SUPP26	SUPP25	SUPP24
	Word 24, bits 12-15	A37	SUPP27	SUPP26	SUPP25
	Word 25, bits 0-3	A38	SUPP28	SUPP27	SUPP26
	Word 25, bits 4-7	A39	SUPP29	SUPP28	SUPP27
	Word 25, bits 8-11	A40	SUPP30	SUPP29	SUPP28
	Word 25, bits 12-15	A41	T-Null	SUPP30	SUPP29
	Word 26, bits 0-3	A42	T-Null	T-Null	SUPP30
	Word 26, bits 4-7	A43	T-Null	T-Null	T-Null
	Word 26, bits 8-11	A44	T-Null	T-Null	T-Null
	Word 26, bits 12-15	A45	T-Null	T-Null	T-Null
	T-Null = TBCD-Null				
	2. Calling Station ID (CSI):				
			7 digit	1-10 digit	
	Word 15, bits 12-15	A1	X	X	
	Word 16, bits 0-3	A2	X	X	
	Word 16, bits 4-7	A3	X	X	
	Word 16, bits 8-11	A4	X	X	
	Word 16, bits 12-15	A5	X	X	
	Word 17, bits 0-3	A6	X	X	
	Word 17, bits 4-7	A7	X	X	
	Word 17, bits 8-11	A8	TBCD-Null	X	
	Word 17, bits 12-15	A9	SUPP1	X	
	Word 18, bits 0-3	A10	SUPP2	X	
	Word 18, bits 4-7	A11	SUPP3	TBCD-Null	
	Word 18, bits 8-11	A12	SUPP4	SUPP1	
	Word 18, bits 12-15	A13	SUPP5	SUPP2	

Word #, Bit #	Description
	Word 19, bits 0-3 A14 SUPP6 SUPP3 Word 19, bits 4-7 A15 SUPP7 SUPP4 Word 19, bits 8-11 A16 SUPP8 SUPP5 Word 19, bits 12-15 A17 SUPP9 SUPP6 Word 20, bits 0-3 A18 SUPP10 SUPP7 Word 20, bits 4-7 A19 SUPP11 SUPP8 Word 20, bits 8-11 A20 SUPP12 SUPP9 Word 20, bits 12-15 A21 SUPP13 SUPP10 Word 21, bits 0-3 A22 SUPP14 SUPP11 Word 21, bits 4-7 A23 SUPP15 SUPP12 Word 21, bits 8-11 A24 SUPP16 SUPP13 Word 21, bits 12-15 A25 SUPP17 SUPP14 Word 22, bits 0-3 A26 SUPP18 SUPP15 Word 22, bits 4-7 A27 SUPP19 SUPP16 Word 22, bits 8-11 A28 SUPP20 SUPP17 Word 22, bits 12-15 A29 SUPP21 SUPP18 Word 23, bits 0-3 A30 SUPP22 SUPP19 Word 23, bits 4-7 A31 SUPP23 SUPP20 Word 23, bits 8-11 A32 SUPP24 SUPP21 Word 23, bits 12-15 A33 SUPP25 SUPP22 Word 24, bits 0-3 A34 SUPP26 SUPP23 Word 24, bits 4-7 A35 SUPP27 SUPP24 Word 24, bits 8-11 A36 SUPP28 SUPP25 Word 24, bits 12-15 A37 SUPP29 SUPP26 Word 25, bits 0-3 A38 SUPP30 SUPP27 Word 25, bits 4-7 A39 TBCD-Null SUPP28 Word 25, bits 8-11 A40 TBCD-Null SUPP29 Word 25, bits 12-15 A41 TBCD-Null SUPP30 Word 26, bits 0-3 A42 TBCD-Null TBCD-Null Word 26, bits 4-7 A43 TBCD-Null TBCD-Null Word 26, bits 8-11 A44 TBCD-Null TBCD-Null Word 26, bits 12-15 A45 TBCD-Null TBCD-Null
	3. Supplemental Codes:  Word 15, bits 12-15 A1 SUPP1 Word 16, bits 0-3 A2 SUPP2 Word 16, bits 4-7 A3 SUPP3 Word 16, bits 8-11 A4 SUPP4 Word 16, bits 12-15 A5 SUPP5 Word 17, bits 0-3 A6 SUPP6 Word 17, bits 4-7 A7 SUPP7 Word 17, bits 8-11 A8 SUPP8 Word 17, bits 12-15 A9 SUPP9 Word 18, bits 0-3 A10 SUPP10 Word 18, bits 4-7 A11 SUPP11 Word 18, bits 8-11 A12 SUPP12 Word 18, bits 12-15 A13 SUPP13

Word #, Bit #	Description
	Word 19, bits 0-3 A14 SUPP14 Word 19, bits 4-7 A15 SUPP15 Word 19, bits 8-11 A16 SUPP16 Word 19, bits 12-15 A17 SUPP17 Word 20, bits 0-3 A18 SUPP18 Word 20, bits 4-7 A19 SUPP19 Word 20, bits 8-11 A20 SUPP20 Word 20, bits 12-15 A21 SUPP21 Word 21, bits 0-3 A22 SUPP22 Word 21, bits 4-7 A23 SUPP23 Word 21, bits 8-11 A24 SUPP24 Word 21, bits 12-15 A25 SUPP25 Word 22, bits 0-3 A26 SUPP26 Word 22, bits 4-7 A27 SUPP27 Word 22, bits 8-11 A28 SUPP28 Word 22, bits 12-15 A29 SUPP29 Word 23, bits 0-3 A30 TBCD-Null Word 23, bits 4-7 A31 TBCD-Null Word 23, bits 8-11 A32 TBCD-Null Word 23, bits 12-15 A33 TBCD-Null Word 24, bits 0-3 A34 TBCD-Null Word 24, bits 4-7 A35 TBCD-Null Word 24, bits 8-11 A36 TBCD-Null Word 24, bits 12-15 A37 TBCD-Null Word 25, bits 0-3 A38 TBCD-Null Word 25, bits 4-7 A39 TBCD-Null Word 25, bits 8-11 A40 TBCD-Null Word 25, bits 12-15 A41 TBCD-Null Word 26, bits 0-3 A42 TBCD-Null Word 26, bits 4-7 A43 TBCD-Null Word 26, bits 8-11 A44 TBCD-Null Word 26, bits 12-15 A45 TBCD-Null
	4. VNet Remote Access and Calling Party Number:  Word 15, bits 12-15 A1 N Word 16, bits 0-3 A2 X Word 16, bits 4-7 A3 X Word 16, bits 8-11 A4 N Word 16, bits 12-15 A5 X Word 17, bits 0-3 A6 X Word 17, bits 4-7 A7 X Word 17, bits 8-11 A8 X Word 17, bits 12-15 A9 X Word 18, bits 0-3 A10 X Word 18, bits 4-7 A11 TBCD-Null Word 18, bits 8-11 A12 SUPP1 Word 18, bits 12-15 A13 SUPP2

Word #, Bit #	Description
	Word 19, bits 0-3 A14 SUPP3 Word 19, bits 4-7 A15 SUPP4 Word 19, bits 8-11 A16 SUPP5 Word 19, bits 12-15 A17 SUPP6 Word 20, bits 0-3 A18 SUPP7 Word 20, bits 4-7 A19 SUPP8 Word 20, bits 8-11 A20 SUPP9 Word 20, bits 12-15 A21 SUPP10 Word 21, bits 0-3 A22 SUPP11 Word 21, bits 4-7 A23 SUPP12 Word 21, bits 8-11 A24 SUPP13 Word 21, bits 12-15 A25 SUPP14 Word 22, bits 0-3 A26 SUPP15 Word 22, bits 4-7 A27 SUPP16 Word 22, bits 8-11 A28 SUPP17 Word 22, bits 12-15 A29 SUPP18 Word 23, bits 0-3 A30 SUPP19 Word 23, bits 4-7 A31 SUPP20 Word 23, bits 8-11 A32 SUPP21 Word 23, bits 12-15 A33 SUPP22 Word 24, bits 0-3 A34 SUPP23 Word 24, bits 4-7 A35 SUPP24 Word 24, bits 8-11 A36 SUPP25 Word 24, bits 12-15 A37 SUPP26 Word 25, bits 0-3 A38 SUPP27 Word 25, bits 4-7 A39 SUPP28 Word 25, bits 8-11 A40 SUPP29 Word 25, bits 12-15 A41 SUPP30 Word 26, bits 0-3 A42 TBCD-Null Word 26, bits 4-7 A43 TBCD-Null Word 26, bits 8-11 A44 TBCD-Null Word 26, bits 12-15 A45 TBCD-Null
	5. Calling Party Number:  Word 15, bits 12-15 A1 N Word 16, bits 0-3 A2 X Word 16, bits 4-7 A3 X Word 16, bits 8-11 A4 N Word 16, bits 12-15 A5 X Word 17, bits 0-3 A6 X Word 17, bits 4-7 A7 X Word 17, bits 8-11 A8 X Word 17, bits 12-15 A9 X Word 18, bits 0-3 A10 X Word 18, bits 4-7 A11 TBCD-Null Word 18, bits 8-11 A12 SUPP1 Word 18, bits 12-15 A13 SUPP2

Word #, Bit #	Description
	Word 19, bits 0-3 A14 SUPP3 Word 19, bits 4-7 A15 SUPP4 Word 19, bits 8-11 A16 SUPP5 Word 19, bits 12-15 A17 SUPP6 Word 20, bits 0-3 A18 SUPP7 Word 20, bits 4-7 A19 SUPP8 Word 20, bits 8-11 A20 SUPP9 Word 20, bits 12-15 A21 SUPP10 Word 21, bits 0-3 A22 SUPP11 Word 21, bits 4-7 A23 SUPP12 Word 21, bits 8-11 A24 SUPP13 Word 21, bits 12-15 A25 SUPP14 Word 22, bits 0-3 A26 SUPP15 Word 22, bits 4-7 A27 SUPP16 Word 22, bits 8-11 A28 SUPP17 Word 22, bits 12-15 A29 SUPP18 Word 23, bits 0-3 A30 SUPP19 Word 23, bits 4-7 A31 SUPP20 Word 23, bits 8-11 A32 SUPP21 Word 23, bits 12-15 A33 SUPP22 Word 24, bits 0-3 A34 SUPP23 Word 24, bits 4-7 A35 SUPP24 Word 24, bits 8-11 A36 SUPP25 Word 24, bits 12-15 A37 SUPP26 Word 25, bits 0-3 A35 SUPP27 Word 25, bits 4-7 A39 SUPP28 Word 25, bits 8-11 A40 SUPP29 Word 25, bits 12-15 A41 SUPP30 Word 26, bits 0-3 A42 TBCD-Null Word 26, bits 4-7 A43 TBCD-Null Word 26, bits 8-11 A44 TBCD-Null Word 26, bits 12-15 A45 TBCD-Null
	6. Credit Card:  Word 15, bits 12-15 A1 X Word 16, bits 0-3 A2 X Word 16, bits 4-7 A3 X Word 16, bits 8-11 A4 X Word 16, bits 12-15 A5 X Word 17, bits 0-3 A6 X Word 17, bits 4-7 A7 X Word 17, bits 8-11 A8 X Word 17, bits 12-15 A9 X Word 18, bits 0-3 A10 X Word 18, bits 4-7 A11 X Word 18, bits 8-11 A12 X Word 18, bits 12-15 A13 X

Word #, Bit #	Description
	Word 19, bits 0-3 A14 X Word 19, bits 4-7 A15 X Word 19, bits 8-11 A16 X Word 19, bits 12-15 A17 X Word 20, bits 0-3 A18 X Word 20, bits 4-7 A19 X Word 20, bits 8-11 A20 TBCD-Null Word 20, bits 12-15 A21 SUPP1 Word 21, bits 0-3 A22 SUPP2 Word 21, bits 4-7 A23 SUPP3 Word 21, bits 8-11 A24 SUPP4 Word 21, bits 12-15 A25 SUPP5 Word 22, bits 0-3 A26 SUPP6 Word 22, bits 4-7 A27 SUPP7 Word 22, bits 8-11 A28 SUPP8 Word 22, bits 12-15 A29 SUPP9 Word 23, bits 0-3 A30 SUPP10 Word 23, bits 4-7 A31 SUPP11 Word 23, bits 8-11 A32 SUPP12 Word 23, bits 12-15 A33 SUPP13 Word 24, bits 0-3 A34 SUPP14 Word 24, bits 4-7 A35 SUPP15 Word 24, bits 8-11 A36 SUPP16 Word 24, bits 12-15 A37 SUPP17 Word 25, bits 0-3 A38 SUPP18 Word 25, bits 4-7 A39 SUPP19 Word 25, bits 8-11 A40 SUPP20 Word 25, bits 12-15 A41 SUPP21 Word 26, bits 0-3 A42 SUPP22 Word 26, bits 4-7 A43 SUPP23 Word 26, bits 8-11 A44 SUPP24 Word 26, bits 12-15 A45 SUPP25
	7. 14 Digit MCI/VNet Calling Card:  Word 15, bits 12-15 A1 X Word 16, bits 0-3 A2 X Word 16, bits 4-7 A3 X Word 16, bits 8-11 A4 X Word 16, bits 12-15 A5 X Word 17, bits 0-3 A6 X Word 17, bits 4-7 A7 X Word 17, bits 8-11 A8 X Word 17, bits 12-15 A9 X Word 18, bits 0-3 A10 X Word 18, bits 4-7 A11 TBCD-A Word 18, bits 8-11 A12 TBCD-A Word 18, bits 12-15 A13 TBCD-A



Word #, Bit #	Description
	Word 19, bits 0-3 A14 TBCD-A Word 19, bits 4-7 A15 TBCD-Null Word 19, bits 8-11 A16 SUPP1 Word 19, bits 12-15 A17 SUPP2 Word 20, bits 0-3 A18 SUPP3 Word 20, bits 4-7 A19 SUPP4 Word 20, bits 8-11 A20 SUPP5 Word 20, bits 12-15 A21 SUPP6 Word 21, bits 0-3 A22 SUPP7 Word 21, bits 4-7 A23 SUPP8 Word 21, bits 8-11 A24 SUPP9 Word 21, bits 12-15 A25 SUPP10 Word 22, bits 0-3 A26 SUPP11 Word 22, bits 4-7 A27 SUPP12 Word 22, bits 8-11 A28 SUPP13 Word 22, bits 12-15 A29 SUPP14 Word 23, bits 0-3 A30 SUPP15 Word 23, bits 4-7 A31 SUPP16 Word 23, bits 8-11 A32 SUPP17 Word 23, bits 12-15 A33 SUPP18 Word 24, bits 0-3 A34 SUPP19 Word 24, bits 4-7 A35 SUPP20 Word 24, bits 8-11 A36 SUPP21 Word 24, bits 12-15 A37 SUPP22 Word 25, bits 0-3 A38 SUPP23 Word 25, bits 4-7 A39 SUPP24 Word 25, bits 8-11 A40 SUPP25 Word 25, bits 12-15 A41 SUPP26 Word 26, bits 0-3 A42 SUPP27 Word 26, bits 4-7 A43 SUPP28 Word 26, bits 8-11 A44 SUPP29 Word 26, bits 12-15 A45 SUPP30
	8. OSID/OTG: Word 15, bits 12-15 A1 X (OSID) Word 16, bits 0-3 A2 X (OSID) Word 16, bits 4-7 A3 X (OSID) Word 16, bits 8-11 A4 X (OTG) Word 16, bits 12-15 A5 X (OTG) Word 17, bits 0-3 A6 X (OTG) Word 17, bits 4-7 A7 X (OTG) Word 17, bits 8-11 A8 TBCD-Null Word 17, bits 12-15 A9 TBCD-Null Word 18, bits 0-3 A10 TBCD-Null Word 18, bits 4-7 A11 TBCD-Null Word 18, bits 8-11 A12 TBCD-Null Word 18, bits 12-15 A13 TBCD-Null

Word #, Bit #	Description
	Word 19, bits 0-3 A14 TBCD-Null Word 19, bits 4-7 A15 TBCD-Null Word 19, bits 8-11 A16 TBCD-Null Word 19, bits 12-15 A17 TBCD-Null Word 20, bits 0-3 A18 TBCD-Null Word 20, bits 4-7 A19 TBCD-Null Word 20, bits 8-11 A20 TBCD-Null Word 20, bits 12-15 A21 TBCD-Null Word 21, bits 0-3 A22 TBCD-Null Word 21, bits 4-7 A23 TBCD-Null Word 21, bits 8-11 A24 TBCD-Null Word 21, bits 12-15 A25 TBCD-Null Word 22, bits 0-3 A26 TBCD-Null Word 22, bits 4-7 A27 TBCD-Null Word 22, bits 8-11 A28 TBCD-Null Word 22, bits 12-15 A29 TBCD-Null Word 23, bits 0-3 A30 TBCD-Null Word 23, bits 4-7 A31 TBCD-Null Word 23, bits 8-11 A32 TBCD-Null Word 23, bits 12-15 A33 TBCD-Null Word 24, bits 0-3 A34 TBCD-Null Word 24, bits 4-7 A35 TBCD-Null Word 24, bits 8-11 A36 TBCD-Null Word 24, bits 12-15 A37 TBCD-Null Word 25, bits 0-3 A38 TBCD-Null Word 25, bits 4-7 A39 TBCD-Null Word 25, bits 8-11 A40 TBCD-Null Word 25, bits 12-15 A41 TBCD-Null Word 26, bits 0-3 A42 TBCD-Null Word 26, bits 4-7 A43 TBCD-Null Word 26, bits 8-11 A44 TBCD-Null Word 26, bits 12-15 A45 TBCD-Null  OSID = Originating Switch ID (000-999) OTG = Originating Trunk ID (0000-8191)
	9. Telecommunication/PTT Cards:  Word 15, bits 12-15 A1 X Word 16, bits 0-3 A2 X Word 16, bits 4-7 A3 X Word 16, bits 8-11 A4 X Word 16, bits 12-15 A5 X Word 17, bits 0-3 A6 X Word 17, bits 4-7 A7 X Word 17, bits 8-11 A8 X Word 17, bits 12-15 A9 X Word 18, bits 0-3 A10 X Word 18, bits 4-7 A11 X Word 18, bits 8-11 A12 X Word 18, bits 12-15 A13 X

Word #, Bit #	Description
	Word 19, bits 0-3 A14 X Word 19, bits 4-7 A15 X Word 19, bits 8-11 A16 X Word 19, bits 12-15 A17 X Word 20, bits 0-3 A18 X Word 20, bits 4-7 A19 X Word 20, bits 8-11 A20 X Word 20, bits 12-15 A21 X Word 21, bits 0-3 A22 X Word 21, bits 4-7 A23 X Word 21, bits 8-11 A24 TBCD-Null Word 21, bits 12-15 A25 SUPP1 Word 22, bits 0-3 A26 SUPP2 Word 22, bits 4-7 A27 SUPP3 Word 22, bits 8-11 A28 SUPP4 Word 22, bits 12-15 A29 SUPP5 Word 23, bits 0-3 A30 SUPP6 Word 23, bits 4-7 A31 SUPP7 Word 23, bits 8-11 A32 SUPP8 Word 23, bits 12-15 A33 SUPP9 Word 24, bits 0-3 A34 SUPP10 Word 24, bits 4-7 A35 SUPP11 Word 24, bits 8-11 A36 SUPP12 Word 24, bits 12-15 A37 SUPP13 Word 25, bits 0-3 A38 SUPP14 Word 25, bits 4-7 A39 SUPP15 Word 25, bits 8-11 A40 SUPP16 Word 25, bits 12-15 A41 SUPP17 Word 26, bits 0-3 A42 SUPP18 Word 26, bits 4-7 A43 SUPP19 Word 26, bits 8-11 A44 SUPP20 Word 26, bits 12-15 A45 SUPP21
	10. Business Group ID:  Word 15, bits 12-15 A1 X Word 16, bits 0-3 A2 X Word 15, bits 4-7 A3 X Word 15, bits 8-11 A4 X Word 16, bits 12-15 A5 X Word 17, bits 0-3 A6 X Word 17, bits 4-7 A7 TBCD-Null Word 17, bits 8-11 A8 SUPP1 Word 17, bits 12-15 A9 SUPP2 Word 18, bits 0-3 A10 SUPP3 Word 18, bits 4-7 A11 SUPP4 Word 18, bits 8-11 A12 SUPP5 Word 18, bits 12-15 A13 SUPP6

Word #, Bit #	Description
	Word 19, bits 0-3 A14 SUPP7 Word 19, bits 4-7 A15 SUPP8 Word 19, bits 8-11 A16 SUPP9 Word 19, bits 12-15 A17 SUPP10 Word 20, bits 0-3 A18 SUPP11 Word 20, bits 4-7 A19 SUPP12 Word 20, bits 8-11 A20 SUPP13 Word 20, bits 12-15 A21 SUPP14 Word 21, bits 0-3 A22 SUPP15 Word 21, bits 4-7 A23 SUPP16 Word 21, bits 8-11 A24 SUPP17 Word 21, bits 12-15 A25 SUPP18 Word 22, bits 0-3 A26 SUPP19 Word 22, bits 4-7 A27 SUPP20 Word 22, bits 8-11 A28 SUPP21 Word 22, bits 12-15 A29 SUPP22 Word 23, bits 0-3 A30 SUPP23 Word 23, bits 4-7 A31 SUPP24 Word 23, bits 8-11 A32 SUPP25 Word 23, bits 12-15 A33 SUPP26 Word 24, bits 0-3 A34 SUPP27 Word 24, bits 4-7 A35 SUPP28 Word 24, bits 8-11 A36 SUPP29 Word 24, bits 12-15 A37 SUPP30 Word 25, bits 0-3 A38 TBCD-Null Word 25, bits 4-7 A39 TBCD-Null Word 25, bits 8-11 A40 TBCD-Null Word 25, bits 12-15 A41 TBCD-Null Word 26, bits 0-3 A42 TBCD-Null Word 26, bits 4-7 A43 TBCD-Null Word 26, bits 8-11 A44 TBCD-Null Word 26, bits 12-15 A45 TBCD-Null
	11. Network Information: Word 15, bits 12-15 A1 X Word 16, bits 0-3 A2 X Word 16, bits 4-7 A3 X Word 16, bits 8-11 A4 X Word 16, bits 12-15 A5 TBCD-Null Word 17, bits 0-3 A6 SUPP1 Word 17, bits 4-7 A7 SUPP2 Word 17, bits 8-11 A8 SUPP3 Word 17, bits 12-15 A9 SUPP4 Word 18, bits 0-3 A10 SUPP5 Word 18, bits 4-7 A11 SUPP6 Word 18, bits 8-11 A12 SUPP7 Word 18, bits 12-15 A13 SUPP8 Word 19, bits 0-3 A14 SUPP9 Word 19, bits 4-7 A15 SUPP10 Word 19, bits 8-11 A16 SUPP11 Word 19, bits 12-15 A17 SUPP12

Word #, Bit #	Description
	Word 20, bits 0-3 A18 SUPP13 Word 20, bits 4-7 A19 SUPP14 Word 20, bits 8-11 A20 SUPP15 Word 20, bits 12-15 A21 SUPP16 Word 21, bits 0-3 A22 SUPP17 Word 21, bits 4-7 A23 SUPP18 Word 21, bits 8-11 A24 SUPP19 Word 21, bits 12-15 A25 SUPP20 Word 22, bits 0-3 A26 SUPP21 Word 22, bits 4-7 A27 SUPP22 Word 22, bits 8-11 A28 SUPP23 Word 22, bits 12-15 A29 SUPP24 Word 23, bits 0-3 A30 SUPP25 Word 23, bits 4-7 A31 SUPP26 Word 23, bits 8-11 A32 SUPP27 Word 23, bits 12-15 A33 SUPP28 Word 24, bits 0-3 A34 SUPP29 Word 24, bits 4-7 A35 SUPP30 Word 24, bits 8-11 A36 TBCD-Null Word 24, bits 12-15 A37 TBCD-Null Word 25, bits 0-3 A38 TBCD-Null Word 25, bits 4-7 A39 TBCD-Null Word 25, bits 8-11 A40 TBCD-Null Word 25, bits 12-15 A41 TBCD-Null Word 26, bits 0-3 A42 TBCD-Null Word 26, bits 4-7 A43 TBCD-Null Word 26, bits 8-11 A44 TBCD-Null Word 26, bits 12-15 A45 TBCD-Null
	12. BOC/LEC Card:  Word 15, bits 12-15 A1 N Word 16, bits 0-3 A2 X Word 16, bits 4-7 A3 X Word 16, bits 8-11 A4 N Word 16, bits 12-15 A5 X Word 17, bits 0-3 A6 X Word 17, bits 4-7 A7 X Word 17, bits 8-11 A8 X Word 17, bits 12-15 A9 X Word 18, bits 0-3 A10 X Word 18, bits 4-7 A11 TBCD-Null Word 18, bits 8-11 A12 TBCD-Null Word 18, bits 12-15 A13 TBCD-Null

Word #, Bit #	Description
	Word 19, bits 0-3 A14 TBCD-Null Word 19, bits 4-7 A15 TBCD-Null Word 19, bits 8-11 A16 TBCD-Null Word 19, bits 12-15 A17 TBCD-Null Word 20, bits 0-3 A18 TBCD-Null Word 20, bits 4-7 A19 TBCD-Null Word 20, bits 8-11 A20 TBCD-Null Word 20, bits 12-15 A21 TBCD-Null Word 21, bits 0-3 A22 TBCD-Null Word 21, bits 4-7 A23 TBCD-Null Word 21, bits 8-11 A24 TBCD-Null Word 21, bits 12-15 A25 TBCD-Null Word 22, bits 0-3 A26 TBCD-Null Word 22, bits 4-7 A27 TBCD-Null Word 22, bits 8-11 A28 TBCD-Null Word 22, bits 12-15 A29 TBCD-Null Word 23, bits 0-3 A30 TBCD-Null Word 23, bits 4-7 A31 TBCD-Null Word 23, bits 8-11 A32 TBCD-Null Word 23, bits 12-15 A33 TBCD-Null Word 24, bits 0-3 A34 TBCD-Null Word 24, bits 4-7 A35 TBCD-Null Word 24, bits 8-11 A36 TBCD-Null Word 24, bits 12-15 A37 TBCD-Null Word 25, bits 0-3 A38 TBCD-Null Word 25, bits 4-7 A39 TBCD-Null Word 25, bits 8-11 A40 TBCD-Null Word 25, bits 12-15 A41 TBCD-Null Word 26, bits 0-3 A42 TBCD-Null Word 26, bits 4-7 A43 TBCD-Null Word 26, bits 8-11 A44 TBCD-Null Word 26, bits 12-15 A45 TBCD-Null
	13. Third Party Number:  Word 15, bits 12-15 A1 N Word 16, bits 0-3 A2 X Word 16, bits 4-7 A3 X Word 16, bits 8-11 A4 N Word 16, bits 12-15 A5 X Word 17, bits 0-3 A6 X Word 17, bits 4-7 A7 X Word 17, bits 8-11 A8 X Word 17, bits 12-15 A9 X Word 18, bits 0-3 A10 X Word 18, bits 4-7 A11 TBCD-Null Word 18, bits 8-11 A12 TBCD-Null Word 18, bits 12-15 A13 TBCD-Null Word 19, bits 0-3 A14 TBCD-Null Word 19, bits 4-7 A15 TBCD-Null Word 19, bits 8-11 A16 TBCD-Null Word 19, bits 12-15 A17 TBCD-Null

Word #, Bit #	Description
	Word 20, bits 0-3 A18 TBCD-Null Word 20, bits 4-7 A19 TBCD-Null Word 20, bits 8-11 A20 TBCD-Null Word 20, bits 12-15 A21 TBCD-Null Word 21, bits 0-3 A22 TBCD-Null Word 21, bits 4-7 A23 TBCD-Null Word 21, bits 8-11 A24 TBCD-Null Word 21, bits 12-15 A25 TBCD-Null Word 22, bits 0-3 A26 TBCD-Null Word 22, bits 4-7 A27 TBCD-Null Word 22, bits 8-11 A28 TBCD-Null Word 22, bits 12-15 A29 TBCD-Null Word 23, bits 0-3 A30 TBCD-Null Word 23, bits 4-7 A31 TBCD-Null Word 23, bits 8-11 A32 TBCD-Null Word 23, bits 12-15 A33 TBCD-Null Word 24, bits 0-3 A34 TBCD-Null Word 24, bits 4-7 A35 TBCD-Null Word 24, bits 8-11 A36 TBCD-Null Word 24, bits 12-15 A37 TBCD-Null Word 25, bits 0-3 A38 TBCD-Null Word 25, bits 4-7 A39 TBCD-Null Word 25, bits 8-11 A40 TBCD-Null Word 25, bits 12-15 A41 TBCD-Null Word 26, bits 0-3 A42 TBCD-Null Word 26, bits 4-7 A43 TBCD-Null Word 26, bits 8-11 A44 TBCD-Null Word 26, bits 12-15 A45 TBCD-Null
	14. International Number:  Word 15, bits 12-15 A1 X(CC) Word 16, bits 0-3 A2 X(CC) Word 16, bits 4-7 A3 X(CC) Word 16, bits 8-11 A4 X(NN) Word 16, bits 12-15 A5 X(NN) Word 17, bits 0-3 A6 X(NN) Word 17, bits 4-7 A7 X(NN) Word 17, bits 8-11 A8 X(NN) Word 17, bits 12-15 A9 X(NN) Word 18, bits 0-3 A10 X(NN) Word 18, bits 4-7 A11 X(NN) Word 18, bits 8-11 A12 X(NN) Word 18, bits 12-15 A13 X(NN) Word 19, bits 0-3 A14 X(NN) Word 19, bits 4-7 A15 X(NN) Word 19, bits 8-11 A16 TBCD-Null Word 19, bits 12-15 A17 TBCD-Null

Word #, Bit #	Description
	Word 20, bits 0-3 A18 TBCD-Null Word 20, bits 4-7 A19 TBCD-Null Word 20, bits 8-11 A20 TBCD-Null Word 20, bits 12-15 A21 TBCD-Null Word 21, bits 0-3 A22 TBCD-Null Word 21, bits 4-7 A23 TBCD-Null Word 21, bits 8-11 A24 TBCD-Null Word 21, bits 12-15 A25 TBCD-Null Word 22, bits 0-3 A26 TBCD-Null Word 22, bits 4-7 A27 TBCD-Null Word 22, bits 8-11 A28 TBCD-Null Word 22, bits 12-15 A29 TBCD-Null Word 23, bits 0-3 A30 TBCD-Null Word 23, bits 4-7 A31 TBCD-Null Word 23, bits 8-11 A32 TBCD-Null Word 23, bits 12-15 A33 TBCD-Null Word 24, bits 0-3 A34 TBCD-Null Word 24, bits 4-7 A35 TBCD-Null Word 24, bits 8-11 A36 TBCD-Null Word 24, bits 12-15 A37 TBCD-Null Word 25, bits 0-3 A38 TBCD-Null Word 25, bits 4-7 A39 TBCD-Null Word 25, bits 8-11 A40 TBCD-Null Word 25, bits 12-15 A41 TBCD-Null Word 26, bits 0-3 A42 TBCD-Null Word 26, bits 4-7 A43 TBCD-Null Word 26, bits 8-11 A44 TBCD-Null Word 26, bits 12-15 A45 TBCD-Null  CC = Customer Connect NN = National Number
	15. LAN Sequence Number:  Word 15, bits 12-15 A1 X Word 16, bits 0-3 A2 X Word 16, bits 4-7 A3 X Word 16, bits 8-11 A4 X Word 16, bits 12-15 A5 X Word 17, bits 0-3 A6 X Word 17, bits 4-7 A7 X Word 17, bits 8-11 A8 X Word 17, bits 12-15 A9 X Word 18, bits 0-3 A10 X Word 18, bits 4-7 A11 X Word 18, bits 8-11 A12 X Word 18, bits 12-15 A13 TBCD-Null Word 19, bits 0-3 A14 TBCD-Null Word 19, bits 4-7 A15 TBCD-Null Word 19, bits 8-11 A16 TBCD-Null Word 19, bits 12-15 A17 TBCD-Null



Word #, Bit #	Description
	Word 20, bits 0-3 A18 TBCD-Null Word 20, bits 4-7 A19 TBCD-Null Word 20, bits 8-11 A20 TBCD-Null Word 20, bits 12-15 A21 TBCD-Null Word 21, bits 0-3 A22 TBCD-Null Word 21, bits 4-7 A23 TBCD-Null Word 21, bits 8-11 A24 TBCD-Null Word 21, bits 12-15 A25 TBCD-Null Word 22, bits 0-3 A26 TBCD-Null Word 22, bits 4-7 A27 TBCD-Null Word 22, bits 8-11 A28 TBCD-Null Word 22, bits 12-15 A29 TBCD-Null Word 23, bits 0-3 A30 TBCD-Null Word 23, bits 4-7 A31 TBCD-Null Word 23, bits 8-11 A32 TBCD-Null Word 23, bits 12-15 A33 TBCD-Null Word 24, bits 0-3 A34 TBCD-Null Word 24, bits 4-7 A35 TBCD-Null Word 24, bits 8-11 A36 TBCD-Null Word 24, bits 12-15 A37 TBCD-Null Word 25, bits 0-3 A38 TBCD-Null Word 25, bits 4-7 A39 TBCD-Null Word 25, bits 8-11 A40 TBCD-Null Word 25, bits 12-15 A41 TBCD-Null Word 26, bits 0-3 A42 TBCD-Null Word 26, bits 4-7 A43 TBCD-Null Word 26, bits 8-11 A44 TBCD-Null Word 26, bits 12-15 A45 TBCD-Null
	16. DNIS:  Word 15, bits 12-15 A1 N Word 16, bits 0-3 A2 X Word 16, bits 4-7 A3 X Word 16, bits 8-11 A4 N Word 16, bits 12-15 A5 X Word 17, bits 0-3 A6 X Word 17, bits 4-7 A7 X Word 17, bits 8-11 A8 X Word 17, bits 12-15 A9 X Word 18, bits 0-3 A10 X Word 18, bits 4-7 A11 TBCD-Null Word 18, bits 8-11 A12 TBCD-Null Word 18, bits 12-15 A13 TBCD-Null Word 19, bits 0-3 A14 TBCD-Null Word 19, bits 4-7 A15 TBCD-Null Word 19, bits 8-11 A16 TBCD-Null Word 19, bits 12-15 A17 TBCD-Null

Word #, Bit #	Description
	Word 20, bits 0-3 A18 TBCD-Null Word 20, bits 4-7 A19 TBCD-Null Word 20, bits 8-11 A20 TBCD-Null Word 20, bits 12-15 A21 TBCD-Null Word 21, bits 0-3 A22 TBCD-Null Word 21, bits 4-7 A23 TBCD-Null Word 21, bits 8-11 A24 TBCD-Null Word 21, bits 12-15 A25 TBCD-Null Word 22, bits 0-3 A26 TBCD-Null Word 22, bits 4-7 A27 TBCD-Null Word 22, bits 8-11 A28 TBCD-Null Word 22, bits 12-15 A29 TBCD-Null Word 23, bits 0-3 A30 TBCD-Null Word 23, bits 4-7 A31 TBCD-Null Word 23, bits 8-11 A32 TBCD-Null Word 23, bits 12-15 A33 TBCD-Null Word 24, bits 0-3 A34 TBCD-Null Word 24, bits 4-7 A35 TBCD-Null Word 24, bits 8-11 A36 TBCD-Null Word 24, bits 12-15 A37 TBCD-Null Word 25, bits 0-3 A38 TBCD-Null Word 25, bits 4-7 A39 TBCD-Null Word 25, bits 8-11 A40 TBCD-Null Word 25, bits 12-15 A41 TBCD-Null Word 26, bits 0-3 A42 TBCD-Null Word 26, bits 4-7 A43 TBCD-Null Word 26, bits 8-11 A44 TBCD-Null Word 26, bits 12-15 A45 TBCD-Null
	<p>17. Network Call Identifier (NCID): If the NCID is recorded in the "A" field, it is recorded in binary beginning with A1. The entry code will indicate the call processing associated with the particular call or '0.' If the NCID is recorded in the NCID field of a 64-word call record, the entry code will also indicate the call processing associated with the particular call or '0.' The NCID comprises the following:</p> <p>Originating Switch ID            Originating Trunk Group            Originating Port Number            Timepoint 1            NCID Sequence Number</p>
Word 27, bits 0-3	Feature Code (FC): Same as OSR/POSR format.
Word 27, bits 4-7	Terminating Network Code (TNC): Same as OSR/POSR format.
Word 27, bits 8-11	Network Access Type (NAT): Same as OSR/POSR format.
Word 27, bits 12-15	Timepoint 7 Qualifier (TP&Q): Same as OSR/POSR format.
Word 28, bits 0-6	Entry Code (EC): Same as OSR/POSR format.
Word 28, bits 7-9	Prefix Digits (PD): Same as OSR/POSR format
Word 28, bits 10-12	NCS/DAP ID (NDID): Same as OSR/POSR format.
Word 28, bits 13-15	Division ID (DIVID): Same as OSR/POSR format.

Word #, Bit #	Description
Word 29, bits 0	Distant Overflow (DO): Same as OSR/POSR format.
Word 29, bit 1	MCI Network Overflow (MNO): Same as OSR/POSR format.
Word 29, bit 2	Customer Connect (CC): Same as OSR/POSR format.
Word 29, bit 3	Inter-Network (IN): Same as OSR/POSR format.
Word 29, bit 4	Not Used
Word 29, bit 5	SAC Bit (SC): This bit is used for the Flexible SAC feature. This bit will be set to "1" whenever the received number which is collected during the address digit collection phase, is identified as a SAC number in the FlexSac Index associated with the originating trunk group. This bit will be set to "0" in all other cases.
Word 29, bit 6	Call Direction (CD): Same as OSR/POSR format.
Word 29, bit 7	Destination (DE): Same as OSR/POSR format.
Word 29, bit 8	Dedicated Termination (DT): Same as OSR/POSR format.
Word 29, bit 9	Person-to-Person (PO): Same as OSR/POSR format.
Word 29, bit 10	Transferred Bit (XB): Same as OSR/POSR format.
Word 29, bit 11	Satellite (SA): Same as OSR/POSR format.
Word 29, bits 12-15	Nature of Calling Location ID (NOCLI): Same as OSR/POSR format.
Word 30, bits 0-15	Carrier Number (CN): Same as OSR/POSR format.
Word 31, bits 0-3	Authorization Code ID (ACIF): Same as OSR/POSR format.
Word 31, bits 4-10	Release Code (RC): Same as OSR/POSR format.
Word 31, bits 11-13	NCID Sequence Number: Same as OSR/POSR format.
Word 31, bit 14	NCID Location (NCIDLOC): Same as OSR/POSR format.
Word 31, bit 15	Remote ANI Screened (RS): Same as OSR/POSR format.
Word 32, bits 0-15 Word 33, bits 0-15	Time & Charges Guest Name (T&C Guest): Records the Time and Charges guest name that will be passed back to the switch from the operator service platform for the time and charges feature. The information is recorded as ASCII characters starting with the first character in word 32, bits 0-7.

Word #, Bit #	Description				
Word 34, bits 0-15	Destination Address (DA): Records up to 25 digits of the destination address in TBCD format in the sequence that they are received or translated to, starting with D1. Unused bytes contain TBCD-Null.				
Word 35, bits 0-15					
Word 36, bits 0-15					
Word 37, bits 0-15					
Word 38, bits 0-15					
Word 39, bits 0-15					
Word 40, bits 0-3					
		7-digit	10-digit	DDD	IDDD
Word 34, bits 0-3	D1	N	N	N	CC
Word 34, bits 4-7	D2	X	X	X	CC
Word 34, bits 8-11	D3	X	X	X	CC
Word 34, bits 12-15	D4	X	N	N	NN
Word 35, bits 0-3	D5	X	X	X	NN
Word 35, bits 4-7	D6	X	X	X	NN
Word 35, bits 8-11	D7	X	X	X	NN
Word 35, bits 12-15	D8	X(TSID)	X	X	NN
Word 36, bits 0-3	D9	X(TSID)	X	X	NN
Word 36, bits 4-7	D10	X(TSID)	X	X	NN
Word 36, bits 8-11	D11	X(TTG)	X(TSID)	T-Null	NN
Word 36, bits 12-15	D12	X(TTG)	X(TSID)	T-Null	NN
Word 37, bits 0-3	D13	X(TTG)	X(TSID)	T-Null	NN
Word 37, bits 4-7	D14	X(TTG)	X(TTG)	T-Null	NN
Word 37, bits 8-11	D15	T-Null	X(TTG)	T-Null	NN
Word 37, bits 12-15	D16	T-Null	X(TTG)	T-Null	T-Null
Word 38, bits 0-3	D17	T-Null	X(TTG)	T-Null	T-Null
Word 38, bits 4-7	D18	T-Null	T-Null	T-Null	T-Null
Word 38, bits 8-11	D19	T-Null	T-Null	T-Null	T-Null
Word 38, bits 12-15	D20	T-Null	T-Null	T-Null	T-Null
Word 39, bits 0-3	D21	T-Null	T-Null	T-Null	T-Null
Word 39, bits 4-7	D22	T-Null	T-Null	T-Null	T-Null
Word 39, bits 8-11	D23	T-Null	T-Null	T-Null	T-Null
Word 39, bits 12-15	D24	T-Null	T-Null	T-Null	T-Null
Word 40, bits 0-3	D25	T-Null	T-Null	T-Null	T-Null
CC = Customer Connect					
NN = National Number					
TSID = Terminating Switch ID					
TTG = Terminating Trunk ID					
T-Null = TBCD-Null					

Word #, Bit #	Description																																																																																																
	18-digit																																																																																																
Word 34, bits 0-3	D1 N																																																																																																
Word 34, bits 4-7	D2 N																																																																																																
Word 34, bits 8-11	D3 N																																																																																																
Word 34, bits 12-15	D4 N																																																																																																
Word 35, bits 0-3	D5 N																																																																																																
Word 35, bits 4-7	D6 N																																																																																																
Word 35, bits 8-11	D7 N																																																																																																
Word 35, bits 12-15	D8 N																																																																																																
Word 36, bits 0-3	D9 N																																																																																																
Word 36, bits 4-7	D10 N																																																																																																
Word 36, bits 8-11	D11 N																																																																																																
Word 36, bits 12-15	D12 N																																																																																																
Word 37, bits 0-3	D13 N																																																																																																
Word 37, bits 4-7	D14 N																																																																																																
Word 37, bits 8-11	D15 N																																																																																																
Word 37, bits 12-15	D16 N																																																																																																
Word 38, bits 0-3	D17 N																																																																																																
Word 38, bits 4-7	D18 N																																																																																																
Word 38, bits 8-11	D19 X (TSID)																																																																																																
Word 38, bits 12-15	D20 X (TSID)																																																																																																
Word 39, bits 0-3	D21 X (TSID)																																																																																																
Word 39, bits 4-7	D22 X (TTG)																																																																																																
Word 39, bits 8-11	D23 X (TTG)																																																																																																
Word 39, bits 12-15	D24 X (TTG)																																																																																																
Word 40, bits 0-3	D25 X (TTG)																																																																																																
	TSID = Terminating Switch ID TTG = Terminating Trunk Group																																																																																																
Word 40, bits 4-15 Word 41, bits 0-15 Word 42, bits 0-15 Word 43, bits 0-15	Pretranslated Digits (PTD): Represents up to 15 digits of a number that is the translation of a number dialed by the caller. <table><tr><th></th><th></th><th>10 digit VNet,SAC DNIS, or Hotline</th><th>00Y SAC Code</th><th>7 digit VNet or SNS</th><th>VNet/ IDDD 15 digit (example)</th></tr><tr><td>Word 40, bits 4-7</td><td>PTD1</td><td>N</td><td>0</td><td>N</td><td>N</td></tr><tr><td>Word 40, bits 8-11</td><td>PTD2</td><td>X</td><td>0</td><td>N</td><td>N</td></tr><tr><td>Word 40, bits 12-15</td><td>PTD3</td><td>X</td><td>Y</td><td>X</td><td>N</td></tr><tr><td>Word 41, bits 0-3</td><td>PTD4</td><td>N</td><td>N</td><td>X</td><td>N</td></tr><tr><td>Word 41, bits 4-7</td><td>PTD5</td><td>X</td><td>X</td><td>X</td><td>N</td></tr><tr><td>Word 41, bits 8-11</td><td>PTD6</td><td>X</td><td>X</td><td>X</td><td>N</td></tr><tr><td>Word 41, bits 12-15</td><td>PTD7</td><td>X</td><td>X</td><td>X</td><td>N</td></tr><tr><td>Word 42, bits 0-3</td><td>PTD8</td><td>X</td><td>X</td><td>T-Null</td><td>N</td></tr><tr><td>Word 42, bits 4-7</td><td>PTD9</td><td>X</td><td>X</td><td>T-Null</td><td>N</td></tr><tr><td>Word 42, bits 8-11</td><td>PTD10</td><td>X</td><td>X</td><td>T-Null</td><td>N</td></tr><tr><td>Word 42, bits 12-15</td><td>PTD11</td><td>T-Null</td><td>T-Null</td><td>T-Null</td><td>N</td></tr><tr><td>Word 43, bits 0-3</td><td>PTD12</td><td>T-Null</td><td>T-Null</td><td>T-Null</td><td>N</td></tr><tr><td>Word 43, bits 4-7</td><td>PTD13</td><td>T-Null</td><td>T-Null</td><td>T-Null</td><td>N</td></tr><tr><td>Word 43, bits 8-11</td><td>PTD14</td><td>T-Null</td><td>T-Null</td><td>T-Null</td><td>N</td></tr><tr><td>Word 43, bits 12-15</td><td>PTD15</td><td>T-Null</td><td>T-Null</td><td>T-Null</td><td>N</td></tr></table> T-Null = TBCD-Null			10 digit VNet,SAC DNIS, or Hotline	00Y SAC Code	7 digit VNet or SNS	VNet/ IDDD 15 digit (example)	Word 40, bits 4-7	PTD1	N	0	N	N	Word 40, bits 8-11	PTD2	X	0	N	N	Word 40, bits 12-15	PTD3	X	Y	X	N	Word 41, bits 0-3	PTD4	N	N	X	N	Word 41, bits 4-7	PTD5	X	X	X	N	Word 41, bits 8-11	PTD6	X	X	X	N	Word 41, bits 12-15	PTD7	X	X	X	N	Word 42, bits 0-3	PTD8	X	X	T-Null	N	Word 42, bits 4-7	PTD9	X	X	T-Null	N	Word 42, bits 8-11	PTD10	X	X	T-Null	N	Word 42, bits 12-15	PTD11	T-Null	T-Null	T-Null	N	Word 43, bits 0-3	PTD12	T-Null	T-Null	T-Null	N	Word 43, bits 4-7	PTD13	T-Null	T-Null	T-Null	N	Word 43, bits 8-11	PTD14	T-Null	T-Null	T-Null	N	Word 43, bits 12-15	PTD15	T-Null	T-Null	T-Null	N
		10 digit VNet,SAC DNIS, or Hotline	00Y SAC Code	7 digit VNet or SNS	VNet/ IDDD 15 digit (example)																																																																																												
Word 40, bits 4-7	PTD1	N	0	N	N																																																																																												
Word 40, bits 8-11	PTD2	X	0	N	N																																																																																												
Word 40, bits 12-15	PTD3	X	Y	X	N																																																																																												
Word 41, bits 0-3	PTD4	N	N	X	N																																																																																												
Word 41, bits 4-7	PTD5	X	X	X	N																																																																																												
Word 41, bits 8-11	PTD6	X	X	X	N																																																																																												
Word 41, bits 12-15	PTD7	X	X	X	N																																																																																												
Word 42, bits 0-3	PTD8	X	X	T-Null	N																																																																																												
Word 42, bits 4-7	PTD9	X	X	T-Null	N																																																																																												
Word 42, bits 8-11	PTD10	X	X	T-Null	N																																																																																												
Word 42, bits 12-15	PTD11	T-Null	T-Null	T-Null	N																																																																																												
Word 43, bits 0-3	PTD12	T-Null	T-Null	T-Null	N																																																																																												
Word 43, bits 4-7	PTD13	T-Null	T-Null	T-Null	N																																																																																												
Word 43, bits 8-11	PTD14	T-Null	T-Null	T-Null	N																																																																																												
Word 43, bits 12-15	PTD15	T-Null	T-Null	T-Null	N																																																																																												

Word #, Bit #	Description																																																												
Word 44, bits 0-7	Enhanced international Routing (EIR) Call Type: Contains the EIR call type ID as received from the DAP in the NCS billing information parameter or from the operator in the NCS billing information ISUP RLT parameter. It is recorded in binary, the default = '0.'																																																												
Word 44, bits 8-14	Overflow Cause Value (OVFVAL): This field is the binary equivalent of the first cause value received or formatted in-switch. This value is taken from the cause value subfield in the cause parameter that initiated overflow.																																																												
Word 44, bit 15	Counts As Bid (CB): Used with the EIR feature. This bit is set to '1' or '0' as per the information received from the DAP in the CB field of the NCS billing information parameter or from the operator in the NCS billing information ISUP RLT parameter.  0 = Does not count as bid (default) 1 = Counts as bid																																																												
Word 45, bits 0-3	Overflow Cause Location (OVFCL): This field is the binary equivalent of the value recorded from the first cause location received or formatted in-switch. This information is taken from the cause location subfield in the cause parameter that initiated overflow.																																																												
Word 45, bits 4-15 Word 46, bits 0-15 Word 47, bits 0-15 Word 48, bits 0-15	Desired Terminating Address (DTA): These 15 bytes contain the originally intended or "desired" termination before overflow was triggered. They contain either: 1) the desired terminating switch id and trunk group for calls that were sent to a DTC termination, 2) a national number, or 3) international number based on what the action code returned from the DAP for the desired termination.  <div><div>DTC DTSID + DTTG</div><div>DDD</div><table><tr><td>Word 45, bits 4-7</td><td>DTA1</td><td>0</td><td>N</td></tr><tr><td>Word 45, bits 8-11</td><td>DTA2</td><td>X (DTSID1)</td><td>X</td></tr><tr><td>Word 45, bits 12-15</td><td>DTA3</td><td>X (DTSID2)</td><td>X</td></tr><tr><td>Word 46, bits 0-3</td><td>DTA4</td><td>X (DTSID3)</td><td>N</td></tr><tr><td>Word 46, bits 4-7</td><td>DTA5</td><td>0</td><td>X</td></tr><tr><td>Word 46, bits 8-11</td><td>DTA6</td><td>X (DTTG1)</td><td>X</td></tr><tr><td>Word 46, bits 12-15</td><td>DTA7</td><td>X (DTTG2)</td><td>X</td></tr><tr><td>Word 47, bits 0-3</td><td>DTA8</td><td>X (DTTG3)</td><td>X</td></tr><tr><td>Word 47, bits 4-7</td><td>DTA9</td><td>X (DTTG4)</td><td>X</td></tr><tr><td>Word 47, bits 8-11</td><td>DTA10</td><td>TBCD-Null</td><td>X</td></tr><tr><td>Word 47, bits 12-15</td><td>DTA11</td><td>TBCD-Null</td><td>TBCD-Null</td></tr><tr><td>Word 48, bits 0-3</td><td>DTA12</td><td>TBCD-Null</td><td>TBCD-Null</td></tr><tr><td>Word 48, bits 4-7</td><td>DTA13</td><td>TBCD-Null</td><td>TBCD-Null</td></tr><tr><td>Word 48, bits 8-11</td><td>DTA14</td><td>TBCD-Null</td><td>TBCD-Null</td></tr><tr><td>Word 48, bits 12-15</td><td>DTA15</td><td>TBCD-Null</td><td>TBCD-Null</td></tr></table><div>DTSID = Desired Terminating Switch ID DTTG = Desired Terminating Trunk Group</div></div>	Word 45, bits 4-7	DTA1	0	N	Word 45, bits 8-11	DTA2	X (DTSID1)	X	Word 45, bits 12-15	DTA3	X (DTSID2)	X	Word 46, bits 0-3	DTA4	X (DTSID3)	N	Word 46, bits 4-7	DTA5	0	X	Word 46, bits 8-11	DTA6	X (DTTG1)	X	Word 46, bits 12-15	DTA7	X (DTTG2)	X	Word 47, bits 0-3	DTA8	X (DTTG3)	X	Word 47, bits 4-7	DTA9	X (DTTG4)	X	Word 47, bits 8-11	DTA10	TBCD-Null	X	Word 47, bits 12-15	DTA11	TBCD-Null	TBCD-Null	Word 48, bits 0-3	DTA12	TBCD-Null	TBCD-Null	Word 48, bits 4-7	DTA13	TBCD-Null	TBCD-Null	Word 48, bits 8-11	DTA14	TBCD-Null	TBCD-Null	Word 48, bits 12-15	DTA15	TBCD-Null	TBCD-Null
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Word 49, bits 0-6	Overflow Count (OVFC): Indicates the total number of intermediate overflow attempts before successful termination was achieved. This value is incremented each time the DAP is accessed for overflow information.																																																															
Word 49, bits 7-12	Desired Termination Action Code (DTAC): This field represents the action code which was received from the DAP in the first response. This information is used to identify the type of information which is recorded in the DTA field.																																																															
Word 49, bit 13	Not Used																																																															
Word 49, bits 14-15 Words 50-54, bits 0-15	Network Call Identifier (NCID): Contains the binary representation of the NCID. The NCID is recorded here at intermediate and terminating switches if the Authcode field is being used to record other information. The NCID is created at the originating switch and is passed to intermediate and terminating switches. The format of the NCID is:  Originating Switch ID (OSID) Originating Trunk Group (OTG) Originating Port (OP) Timepoint 1 (TP1) NCID Sequence Number																																																															
Word 55, bits 0-15 Word 56, bits 0-15 Word 57, bits 0-15	Time and Charges Room Number (T&C Room): This field records the time and charges room number that will be passed back to the switch from the operator service platform for the time and charges feature. The information is recorded as ASCII characters starting with the first character in word 53, bits 0-7.																																																															

Word #, Bit #	Description
Word 58, bits 0-15 Word 59, bits 0-15 Word 60, bits 0-156	EVS Application Counter (EAC-1): This field records the EVS application counter values if an ARU is used in the call. The field contains the digits that were dialed by the customer in response to audio menu options.
Word 61, bits 0-13	Operator ID Number (OPIN): This field contains the operator ID number of the operator that handled the call.
Word 61, bits 14-15	Overflow Cause Coding Standard (OVFCS): Contains the binary equivalent of the first coding standard received or formatted in-switch. This value is taken from the coding standard subfield in the cause parameter that initiated overflow. It will not be overwritten by subsequent coding standards received or in-switch formatted values. This field is used for enhanced overflow calls only.
Word 62, bits 0-12	Timepoint 5 (TPS): A binary count of the number of seconds between the time timepoint 1 occurred and the time that the operator stopped handling the call and releases the position. If the call is transferred to other operators, the value contained in this field shall express the release time of the last operator providing the service.
Word 62, bits 13-15	Not Used.
Word 63, bits 0-15	Room Number (RN): Contains the last four digits of the Calling Station ID (CSI) when a call originates from a hotel, a university, or any other community identified by only a main telephone number. The CSI shall be obtained from the originating signalling information, or verbally by the operator who enters the information manually into the OSR.
Word 0, bits 0-3	Call Record Id (CRID): Identifies the record type.  0 = Default 1 = CDR 2 = SER 3 = PNR 4 = OSR 5 = POSR 6 = ECDR 7 = EPOSR 8 = EOSR 9 = EPOSR 10-15 = Not Used
Word 0, bits 4-15	Sync word: This word contains a minus two (7776 <sub>8</sub> ).
Word 1, bits 0-15 Word 2, bits 0-15	Call Disconnect ID (CDID): Identifies the call record. Each call record has a unique number. When a switch cold restart or reload occurs, the CDID is set to 0 and a Switch Event Record with an event code of 3 is written. When the CDID count rolls over, an event code of 10 SER is recorded.



Word #, Bit #	Description
Word 3, bits 0-15	<p>Switch ID (SWID): Contains the unique identifier of the current switch. the SWID consists of three (3) packed alphanumeric characters. The lead character may be any hex digit (0-F). The next two (2) characters are any number in a base 36 system. Base 36 symbols are 0-9, A-Z. The maximum octal number in the base 36 is 43<sub>8</sub> which represents the letter Z. Values 44<sub>8</sub> through 77<sub>8</sub> are unused.</p> <p>Word 3, bits 0-3      SWID1 (0-9, A-F)  Word 3, bits 4-9      SWID2 (0-9, A-Z)  Word 3, bits 10-15   SWID3 (0-9, A-Z)</p>
Word 4, bits 0-7	<p>Switch Type (ST): Indicates the type of switch.</p> <p>0 = default  1 = 580L SCX  2 = DEX-400  3 = CTSS-1000  4 = CTSS-4000  5 = DMS-250  6 = AXE-10  7 = DEX-600  8 = DMS-300  9 = DMS-TOPS  10 = DEX-600E  11 = AS20  12 = AS27  13 = EVS ARU  14-255 = Not Used</p>

Word #, Bit #	Description
Word 4, bits 8-15	<p>Event Qualifier (EQ): Identifies the event causing the record.</p> <p>0 = default  1 = Input command or automatic system update that changed date  2 = Input command or automatic system update that changed time  3 = System restart  4 = Hourly log (HH:00:00)  5 = Recovery Action  6 = End of billing data (End of File)  7 = Start of billing data (Start of File)  8 = NEMAS SRB blocking record (end of billing block)  9 = Daylight savings time changed (time and offset time changed)  10 = CDID LOG (CDID rolled over to 0)  11 = Not Used  12 = Blank SER (filler record for billing block)  13-255 = Not Used</p> <p>An event code 7 SER will always be the first record in the call history data set.</p> <p>An event code 8 SER will always be the last record in the call block and will be immediately proceeded by event code 6.</p> <p>An event code 9 SER will be invoked by a man-machine command that invokes a Daylight Saving Time change.</p> <p>An event code 10 SER will be written each time the Call Disconnect ID (CDID) rolls over from a maximum count to '0'. This event code will not be written for CDID rollovers due to system restarts.</p>
Word 5, bits 0-15 Word 6, bits 0-15	SER Event Time (SERET): Contains the epoch time of this SER and is used for event codes.
Word 7, bits 0-3	Not Used
Word 7, bits 4-15	First CDID (FCDID): Contains the last 12 bits of the CDID that was recorded in the first call record or SER in this billing block. This field is used in SER event code 8.
Word 8, bits 0-3	Not Used
Word 8, bits 4-15	Last CDID (LCDID): Contains the CDID that was recorded in the last call record or SER in this billing block. This field is used in SER 8.
Word 9, bits 0-3	Not Used
Word 9, bits 4-15	Next CDID (NCDID): Contains the CDID in the next call record or SER. This field is used in SER 8.
Word 10, bits 0-15	NEMAS Blocking Sequence Number (NBSN): Contains the NEMAS blocking sequence number in event code 8 SERs. The first event code 8 SER within a call history file is set to a NBSN value of 0. The NBSN value is sequentially incremented in following event code 8 SERs.

Word #, Bit #	Description
Word 11, bits 0-15 Word 12, bits 0-15	Previous Time (PT): Contains the epoch time of the time before a system time change was made. Used in SER 1, 2, and 9.
Word 13, bit 0	Sign Bit (SB): Indicates whether the time offset is a negative or positive number. This field is used in all SERs.  0 = positive offset 1 = negative offset
Word 13, bits 1-10	Time Offset (TO): Used to record the time offset from universal time (UTC) in one minute increments. This field is used in all SERs.
Word 13, bits 11-15 Word 14, bits 0-15 Word 15, bits 0-15	Not Used.
Word 16, bits 0-15 Word 17, bits 0-15 Word 18, bits 0-15	Software Load ID1-6: Contains 6 bytes of the software load identifier of the switch recording the billing. This field is written in EBCDIC format and contains the same data as the software load identifier that is recorded in the call history tape label
Word 19, bits 0-15	Last Patch #1, #2: These 2 bytes contain the latest patch number/point release of the switch recording the billing. This field is written in EBCDIC format and contains the same data as the latest patch number/point release that is recorded in the call history tape label. The point release identifies the upgrade level of the current software load. Used in SER 7.
Word 20, bits 0-5	Quantity CDR (QCDR): Contains the quantity of CDRs that were recorded in this billing block. Used only for event code 8 SERs.
Word 20, bits 6-11	Quantity ECDR (QECDR): Contains the quantity of expanded CDRs that were recorded in this billing block. Used only for event code 8 SERs.
Word 20, bits 12-15	Not Used
Word 21, bits 0-5	Quantity PNR (QPNR): Contains the quantity of PNRs that were recorded in this billing block. Used only for event code 8 SERs.
Word 21, bits 6-11	Quantity EPNR (QEPNR): Contains the quantity of expanded PNRs that were recorded in this billing block. Used only for event code 8 SERs.
Word 21, bits 12-15	Not Used
Word 22, bits 0-5	Quantity OSR (QOSR): Contains the quantity of OSRs that were recorded in this billing block. Used only for event code 8 SERs.
Word 22, bits 6-11	Quantity EOSR (QEOSR): Contains the quantity of expanded OSRs that were recorded in this billing block. Used only for event code 8 SERs.
Word 22, bits 12-15	Not Used
Word 23, bits 0-5	Quantity POSR (QPOSR): Contains the quantity of POSRs that were recorded in this billing block. Used only for event code 8 SERs.

Word #, Bit #	Description
Word 23, bits 6-11	Quantity EPOSR (QEPOSR): Contains the quantity of expanded POSRs that were recorded in this billing block. Used only for event code 8 SERs.
Word 23, bits 12-15	Not Used
Word 24, bits 0-5	Quantity SER (QSER): Contains the quantity of SERs that were recorded in this billing block. Used only for event code 8 SERs.
Word 24, bits 6-12	Call History File Number (CHFN): Contains the call history file number as assigned when a call history file is opened at the switch. Used in all SERs. The first opened file contains a CHFN value of 0. Each new file opened in that same day shall increment the CHFN by one. When the Julian date changes (at midnight), the next file opened shall cause the CHFN to be reset back to zero.
Word 24, bits 13-14	Not Used.
Word 24, bit 15	SER 12 Used (SU): This bit is set in an SER 8 if the previous call record was a SER 12.
Word 25, bits 0-15 Word 26, bits 0-15	CDR Throttle Start Time: Records the epoch time when CDR throttling started. Used in SER 8.
Word 27, bits 0-15 Word 28, bits 0-15	CDR Throttle Stop Time: Records the epoch time when CDR throttling stopped. Used in SER 8.
Word 29, bits 0-11	Not Used.
Word 29, bits 12-15	Format Version: This field is filled with 1's to identify the 32/64 word format. The billing system must then look to Word 0, bits 0-3 to determine the type of call record used.
Word 30, bits 0-15 Word 31, bits 0-15	Throttle Count: Used to record the number of CDRs that were not written during the time that CDR throttling was invoked. Used in SER 8.

**CLAIMS**

What is claimed is:

1. A communications system, comprising:  
5 one or more switched communications networks;  
one or more packet transmission networks;  
a prioritizing access router coupled to the switched communications  
networks and the packet transmission networks; and  
10 a memory coupled to the prioritizing access router and having stored therein  
a service control parameter database; the prioritizing access router  
including a plurality of functions, each function configured to route  
data over the switched communications network and the packet  
transmission network based on at least one service control parameter  
15 from the service control parameter database, the prioritizing access  
router further including logic that delivers some data on each network  
interface earlier than other data, based on at least one service control  
parameter from the service control parameter database.
2. The communications system of claim 1 wherein the plurality of  
20 functions includes the employment of modulation/demodulation  
(modem) equipment to transmit and receive data over standard  
telephone lines.
3. The communications system of claim 1 wherein the plurality of  
25 functions includes the employment of standard data network interface  
equipment, including but not limited to 10baseT Ethernet, 100baseT  
Ethernet, coaxial Ethernet, Gigabit Ethernet, Isochronous Ethernet,  
Fiber Distributed Data Interface (FDDI), Asynchronous Transfer Mode  
(ATM), X.25, Frame Relay, and Switched Multimegabit Data Service.
- 30 4. The communications system of claim 1 wherein the plurality of  
functions includes the use conversion function, capable of converting

packets utilizing the Point to Point Protocol (PPP) to packets utilizing the Internet Protocol (IP), or vice versa.

5. The communications system of claim 1 wherein the plurality of functions includes the use of packet classifier function, capable of classifying packets in groups according to criteria.
6. The communications system of claim 5 wherein the packet classifier function classifies packets according to destination IP address.
7. The communications system of claim 5 wherein the packet classifier function classifies packets according to originating IP address.
8. The communications system of claim 5 wherein the packet classifier function classifies packets according to destination User Datagram Protocol (UDP) port number.
9. The communications system of claim 5 wherein the packet classifier function classifies packets according to originating UDP port number.
10. The communications system of claim 5 wherein the packet classifier function classifies packets according to destination Telnet Control Protocol port number.
11. The communications system of claim 5 wherein the packet classifier function classifies packets according to originating Telnet Control Protocol port number.
12. The communications system of claim 5 wherein the packet classifier function classifies packets according to a flow label.
13. The communications system of claim 5 wherein the packet classifier

function classifies packets according to a tag.

14. The communications system of claim 5 wherein the packet classifier function classifies packets according to a data type.
- 5 15. The communications system of claim 5 wherein the packet classifier function classifies packets according to originating User ID.
- 10 16. The communications system of claim 5 wherein the packet classifier function classifies packets according to destination User ID.
17. The communications system of claim 5 wherein the packet classifier function classifies packets according to any defined data field in the packet.
- 15 18. The communications system of claim 5 wherein the plurality of functions includes the employment of a packet scheduler.
- 20 19. The communications system of claim 18 wherein the packet scheduler is configured to place packets on a priority queue according to packet classification and service control parameters.
- 25 20. The communications system of claim 19 wherein the priority queues order packets for transmission on network interfaces.
21. The communications system of claim 19 wherein the priority queues order packets for transmission on modem interfaces.
- 30 22. The communications system of claim 1 wherein the plurality of functions includes a controller function.
23. The communications system of claim 22 wherein the controller

function accepts control commands through an application programming interface.

- 5      24.    The communications system of claim 22 wherein the controller function can accept or reject control commands based upon defined policies.
- 10     25.    The communications system of claim 22 wherein the controller function can accept or reject control commands based upon resource availability.
26.    The communications system of claim 22 wherein the controller function can accept or reject control commands based upon the privileges granted to the requesting entity.



27. A computer program embodied on a computer-readable medium for prioritizing and routing media transmissions on a hybrid network, the hybrid network including one or more switched networks coupled to one or more packet transmission networks, comprising:
- 5 first software that prioritizes access and routing between the switched communications network and the packet transmission networks; and storing a service control parameter database in a memory coupled to the first software including a plurality of functions, each function
- 10 configured to route data over the switched communications network and the packet transmission network based on at least one service control parameter from the service control parameter database, and logic that delivers some data on each network interface earlier than other data, based on at least one service control parameter from the
- 15 service control parameter database.

28. A telecommunications system, which comprises:  
a switched communications network;  
a packet transmission network coupled to the switched communications network;  
5 a user terminal coupled to the switched communications network or the packet transmission network, or both;  
one or more call routers coupled to the switched communications network and the packet transmission network;  
10 a memory coupled to each call router and having stored therein a call parameter database; each call router being configured to route a call over the switched communications network and the packet transmission network based on at least one call parameter from the call parameter database, the call router further being configured to provide an intelligent service platform, the intelligent service platform  
15 having a plurality of functions available from a single connection;  
a gateway which couples the packet transmission network with the switched communications network;  
a call queue manager coupled to the packet transmission network;  
an Automated Call Distributor (ACD) coupled to the switched  
20 communications network;  
an ACD Controller coupled to the ACD; and  
an agent workstation coupled to the switched communications network via the ACD, and coupled to the packet transmission network.
- 25 29. The telecommunications system of claim 28 in which the plurality of functions include at least one of user profile management, information service profile management, address translation, admission control, resource management, topology tracking, statistics collection, utilization and billing data logging, message retrieval and message  
30 distribution.
30. The telecommunications system of claim 28 in which the user

terminal is configured to browse the world wide web.

- 5      31. The telecommunications system of claim 28 in which the user terminal is configured with software and hardware permitting the launch of an interactive voice or multimedia conversation.
- 10      32. The telecommunications system of claim 31 in which a call router routes the interactive voice or multimedia conversation to a call queue manager.
- 15      33. The telecommunications system of claim 32 in which the call queue manager places the call in a priority queue, awaiting the availability of network resources.
- 20      34. The telecommunications system of claim 33 in which the call queue manager routes the interactive voice or multimedia conversation to a gateway when the network resources become available.
- 25      35. The telecommunications system of claim 34 in which the gateway launches a corresponding interactive voice or multimedia conversation on the switched communications network.
- 30      36. The telecommunications system of claim 35 in which a call router routes the corresponding interactive voice or multimedia conversation to an ACD.
37. The telecommunications system of claim 36 in which the gateway signals information to the ACD, including at least one of the following: identification of the conversation originator, identification of the originating user terminal, identification of the originating gateway, identification of one or more web pages browsed, identification of the intended destination address, identification of the intended

destination user, and unique identification of the interactive voice conversation.

- 5 38. The telecommunications system of claim 37 in which the ACD delivers the signaling information to the ACD controller.
- 10 39. The telecommunications system of claim 38 in which the ACD controller, using any available resources on the packet transmission network or the switched communications network, forms display screens.
- 15 40. The telecommunications system of claim 39 in which the ACD controller delivers the display screens to an agent workstation.
- 20 41. The telecommunications system of claim 39 in which the ACD controller transfers the interactive voice or multimedia conversation to the agent workstation.
- 25 42. The telecommunications system of claim 41 in which the agent workstation permits voice or multimedia interaction with the originating user terminal, via the packet transmission network and the switched communications network.
- 30 43. The telecommunications system of claim 31 in which a call router routes the interactive voice or multimedia conversation to a gateway.
44. The telecommunications system of claim 43 in which the gateway launches a corresponding interactive voice or multimedia conversation on the switched communications network.
45. The telecommunications system of claim 44 in which a call router routes the corresponding interactive voice or multimedia conversation

to an ACD.

46. The telecommunications system of claim 45 in which the gateway signals information to the ACD, including at least one of the following:  
5 identification of the conversation originator, identification of the originating user terminal, identification of the originating gateway, identification of one or more web pages browsed, identification of the intended destination address, identification of the intended destination user, and unique identification of the interactive voice  
10 conversation.
47. The telecommunications system of claim 46 in which the ACD delivers the signaling information to the ACD controller.
- 15 48. The telecommunications system of claim 47 in which the ACD controller, using any available resources on the packet transmission network or the switched communications network, forms display screens.
- 20 49. The telecommunications system of claim 48 in which the ACD controller delivers the display screens to an agent workstation.
50. The telecommunications system of claim 49 in which the ACD controller transfers the interactive voice or multimedia conversation to  
25 the agent workstation.
51. The telecommunications system of claim 50 in which the agent workstation permits voice or multimedia interaction with the originating user terminal, via the packet transmission network and  
30 the switched communications network.

52. A telecommunications system, which comprises:  
a switched communications network;  
a packet transmission network coupled to the switched communications network;  
5 a user terminal coupled to the switched communications network or the packet transmission network, or both;  
one or more call routers coupled to the switched communications network and the packet transmission network;  
a memory coupled to each call router and having stored therein a call  
10 parameter database; each call router being configured to route a call over the switched communications network and the packet transmission network based on at least one call parameter from the call parameter database, the call router further being configured to provide an intelligent service platform, the intelligent service platform  
15 having a plurality of functions available from a single connection;  
a gateway which couples the packet transmission network with the switched communications network;  
a call queue manager coupled to the packet transmission network;  
an Automated Call Distributor (ACD) coupled to the switched  
20 communications network;  
an ACD Controller coupled to the ACD;  
a Voice Response Unit coupled to the ACD; and  
an agent workstation coupled to the switched communications network via the ACD, and coupled to the packet transmission network.  
25
53. The telecommunications system of claim 52 in which the plurality of functions include at least one of user profile management, information service profile management, address translation, admission control, resource management, topology tracking, statistics collection,  
30 utilization and billing data logging, message retrieval and message distribution.

54. The telecommunications system of claim 52 in which the user terminal is configured to browse the world wide web.
- 5 55. The telecommunications system of claim 52 in which the user terminal is configured with software and hardware permitting the launch of an interactive voice or multimedia conversation.
- 10 56. The telecommunications system of claim 55 in which the call queue manager places the call in a priority queue, awaiting the availability of network resources.
- 15 57. The telecommunications system of claim 56 in which the call queue manager routes the interactive voice or multimedia conversation to a gateway when the network resources become available.
- 20 58. The telecommunications system of claim 57 in which a call router routes the interactive voice or multimedia conversation to a gateway.
59. The telecommunications system of claim 58 in which the gateway launches a corresponding interactive voice or multimedia conversation on the switched communications network.
- 25 60. The telecommunications system of claim 59 in which a call router routes the corresponding interactive voice or multimedia conversation to an ACD.
- 30 61. The telecommunications system of claim 60 in which ACD connects the interactive voice or multimedia conversation to a Voice Response Unit (VRU).
62. The telecommunications system of claim 61 in which the gateway signals information to the VRU, including at least one of the following:

- 5 identification of the conversation originator, identification of the originating user terminal, identification of the originating gateway, identification of one or more web pages browsed, identification of the intended destination address, identification of the intended destination user, and unique identification of the interactive voice conversation.
- 10 63. The telecommunications system of claim 62 in which the VRU delivers the signaling information to the ACD controller.
- 15 64. The telecommunications system of claim 63 in which the ACD controller, using any available resources on the packet transmission network or the switched communications network, forms display screens.
- 20 65. The telecommunications system of claim 64 in which the ACD controller delivers the display screens to an agent workstation.
- 25 66. The telecommunications system of claim 65 in which the ACD controller transfers the interactive voice or multimedia conversation to the agent workstation.
- 30 67. The telecommunications system of claim 66 in which the agent workstation permits voice or multimedia interaction with the originating user terminal, via the packet transmission network and the switched communications network.
68. The telecommunications system of claim 55 in which a call router routes the interactive voice or multimedia conversation to a gateway.
69. The telecommunications system of claim 68 in which the gateway launches a corresponding interactive voice or multimedia conversation



on the switched communications network.

- 5      70.    The telecommunications system of claim 69 in which a call router routes the corresponding interactive voice or multimedia conversation to an ACD.
- 10      71.    The telecommunications system of claim 70 in which ACD connects the interactive voice or multimedia conversation to a Voice Response Unit (VRU).
- 15      72.    The telecommunications system of claim 71 in which the gateway signals information to the VRU, including at least one of the following: identification of the conversation originator, identification of the originating user terminal, identification of the originating gateway, identification of one or more web pages browsed, identification of the intended destination address, identification of the intended destination user, and unique identification of the interactive voice conversation.
- 20      73.    The telecommunications system of claim 72 in which the VRU delivers the signaling information to the ACD controller.
- 25      74.    The telecommunications system of claim 73 in which the ACD controller, using any available resources on the packet transmission network or the switched communications network, forms display screens.
- 30      75.    The telecommunications system of claim 74 in which the ACD controller delivers the display screens to an agent workstation.
76.    The telecommunications system of claim 75 in which the ACD controller transfers the interactive voice or multimedia conversation to

the agent workstation.

- 5      77.    The telecommunications system of claim 76 in which the agent workstation permits voice or multimedia interaction with the originating user terminal, via the packet transmission network and the switched communications network.

78. A hybrid telecommunication system, which comprises:
- (a) a switched communication network;
  - (b) a packet transmission network coupled to the switched communication network;
  - 5 (c) a call router coupled to the switched communication network and the packet transmission network;
  - (d) a computer with an attached display that communicates to the switched communication network and the packet transmission network;
  - 10 (e) the computer being configured to prompt a caller for information and in response to receipt of the information initiating a callback session on the hybrid telecommunication system; and
  - (f) the callback session initiating calls to each caller and billing as identified in the information.
- 15 79. The hybrid telecommunication system of claim 78 in which the callback session preserves profile information on callers that can be accessed, reviewed and modified utilizing a webpage and whereby the profile is used for default information.
- 20 80. The hybrid telecommunication system of claim 78 in which the information includes at least one of calling number and called number.
- 25 81. The hybrid telecommunication system of claim 80 in which the calling or called number are an internet protocol address.
82. The hybrid telecommunication system of claim 81 in which the internet protocol address includes a port address.
- 30 83. The hybrid telecommunication system of claim 78 in which the information is entered via a webpage on the internet.

84. The hybrid telecommunication system of claim 83 in which the expert system comprises a monitoring and reporting system that regulates the Quality of Service of the hybrid telecommunication system.
- 5
85. A method for enabling a hybrid telecommunication system, the hybrid telecommunication system including one or more switched networks coupled to one or more packet transmission networks, comprising the steps of:
- 10 (a) coupling a call router to the switched communication network and the packet transmission network;
- (b) integrating a computer with an attached display to communicate with the packet transmission network, the computer being configured to prompt a caller for information and in response to receipt of the
- 15 information, initiating a callback session on the hybrid telecommunication system; and
- (c) initiating a callback session with each caller and billing as identified in the information.
- 20 86. The method of claim 85 in which the callback session preserves profile information on callers that can be accessed, reviewed and modified utilizing a webpage and whereby the profile is used for default information.
- 25 87. The method of claim 86 in which the information includes at least one of calling number and called number.
88. The method of claim 87 in which the calling or called number are an internet protocol address.
- 30 89. The method of claim 88 in which the internet protocol address includes a port address.

90. The method of claim 85 in which the information is entered via a webpage on the internet.
- 5 91. The method of claim 90 wherein the expert system comprises a monitoring and reporting system that regulates the Quality of Service of the hybrid telecommunication system.

92. A computer program embodied on a computer-readable medium for enabling a hybrid telecommunication system, the hybrid telecommunication system including one or more switched networks coupled to one or more packet transmission networks, comprising:
- 5 (a) first software that couples a call router to the switched communication network and the packet transmission network;
- (b) second software that integrates a computer with an attached display to communicate with the packet transmission network, the computer being configured to prompt a caller for information and in response to receipt of the information, initiating a callback session on the hybrid
- 10 telecommunication system; and
- (c) third software that initiates a callback session with each caller and billing as identified in the information.
- 15 93. The computer program of claim 92 in which the callback session preserves profile information on callers that can be accessed, reviewed and modified utilizing a webpage and whereby the profile is used for default information.
- 20 94. The computer program of claim 93 in which the information includes at least one of calling number and called number.
95. The computer program of claim 94 in which the calling or called number are an internet protocol address.
- 25 96. The computer program of claim 95 in which the internet protocol address includes a port address.
97. The computer program of claim 92 in which the information is entered
- 30 via a webpage on the internet.
98. The computer program of claim 97 wherein the expert system

comprises a monitoring and reporting system that regulates the Quality of Service of the hybrid telecommunication system.

- 5 99. The hybrid telecommunication system of claim 78 wherein the information includes the time and date that the callback session is scheduled to occur.
- 10 100. The hybrid telecommunication system of claim 78 wherein the callback session initiates a status window on an associated display of at least one of the calling parties
- 15 101. The hybrid telecommunication system of claim 99 in which the information includes at least one of time and date call initiation, calling number and called number.
- 20 102. The method of claim 85 further including the step of scheduling the callback session at the time and date specified in the information.
103. The method of claim 85 further including the step of initiating a status window on an associated display of at least one of the calling parties.
- 25 104. The computer program of claim 92 further including fourth software that schedules the callback session at the time and date specified in the information.
105. The computer program of claim 92 in which the callback session initiates a status window on an associated display of at least one of the calling parties.
- 30 106. The hybrid telecommunication system of claim 78 further including an operator assistance that is activated on an exception basis by interaction with a display toggle.

107. The method of claim 85 further including invoking an operator assistance on an exception basis by triggering a display toggle
- 5 108. The computer program of claim 92 further including fourth software that invokes an operator assistance on an exception basis by triggering a display toggle.
- 10 109. The hybrid telecommunication system of claim 78 wherein the information includes at least one callback number that specifies an internet capable telephony device.
110. The method of claim 85 further including at least one callback number that specifies an internet capable telephony device.
- 15 111. The computer program of claim 92 further including fourth software that includes at least one callback number that specifies an internet capable telephony device.
- 20 112. The hybrid telecommunication system of claim 78 wherein the information includes a first callback number that specifies an internet capable telephony device and a second callback number that specifies another telephony device.
- 25 113. The method of claim 85 further including a first callback number that specifies an internet capable telephony device and a second callback number that specifies another telephony device.
- 30 114. The computer program of claim 92 further including fourth software that includes a first callback number that specifies an internet capable telephony device and a second callback number that specifies another telephony device.



115. The hybrid telecommunication system of claim 78 further including an expert system for self-regulating the hybrid network for optimal performance.

5

116. The method of claim 85 further including regulating the hybrid network with an expert system for optimal performance.

10

117. The computer program of claim 92 further including fourth software that includes an expert system for self-regulating the hybrid network for optimal performance.

15

118. The hybrid telecommunication system of claim 78 further including a display presented to a caller via a web page that includes status information pertaining to the callback session.

20

119. The hybrid telecommunication system of claim 118 in which the webpage contains an area where call participants can place information available to all callers during the call.

25

120. The hybrid telecommunication system of claim 118 in which the information includes at least one of calling number and called number.

121. The method of claim 85 including the step of presenting a display to a caller via a web page that includes status information pertaining to the callback session.

30

122. The method of claim 121 including the step of placing information in the webpage to make the information available to all callers during the call. .

123. The method of clam 121 in which the information includes at least one of calling number and called number.

124. The computer program of claim 92 further including fourth software that presents a display to a caller via a web page that includes status information pertaining to the callback session.
- 5 125. The computer program of claim 124 in which the webpage contains an area where call participants can place information available to all callers during the call.
- 10 126. The hybrid telecommunication system of claim 78 wherein the information includes a switch for initiating a collect callback session.
127. The hybrid telecommunication system of claim 126 in which the webpage contains an area where call participants can place information available to all callers during the call.
- 15 128. The method of claim 85 further including the step of initiating a collect callback session.
- 20 129. The method of claim 128 further including the step of placing information in the webpage to make the information available to all callers during the call.
- 25 130. The computer program of claim 92 further including fourth software that initiates a collect callback session.
131. The computer program of claim 130 in which the webpage contains an area where call participants can place information available to all callers during the call.

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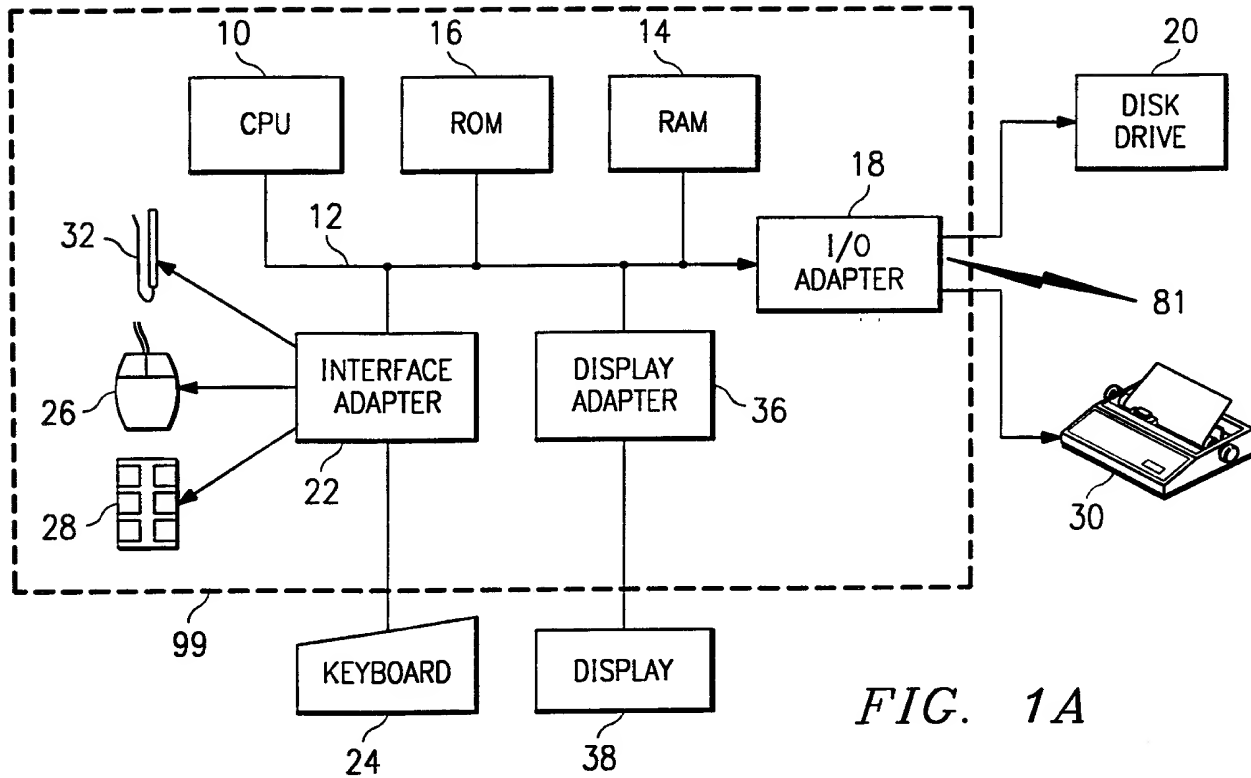


FIG. 1A

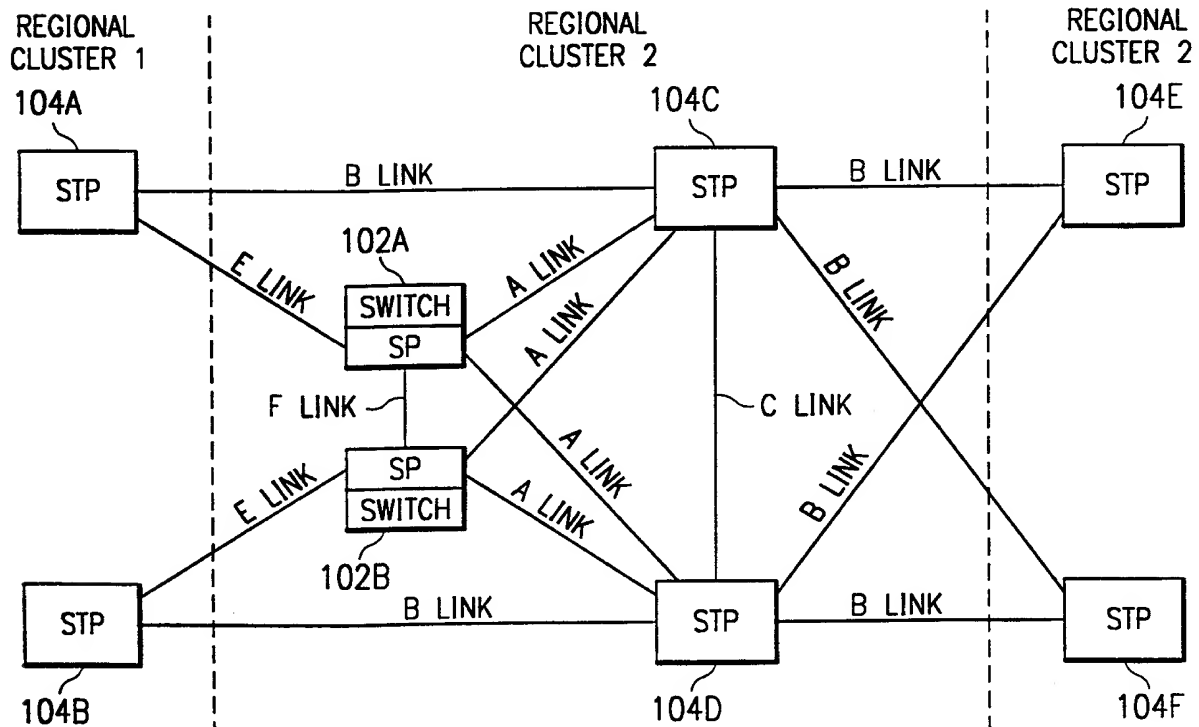


FIG. 1B

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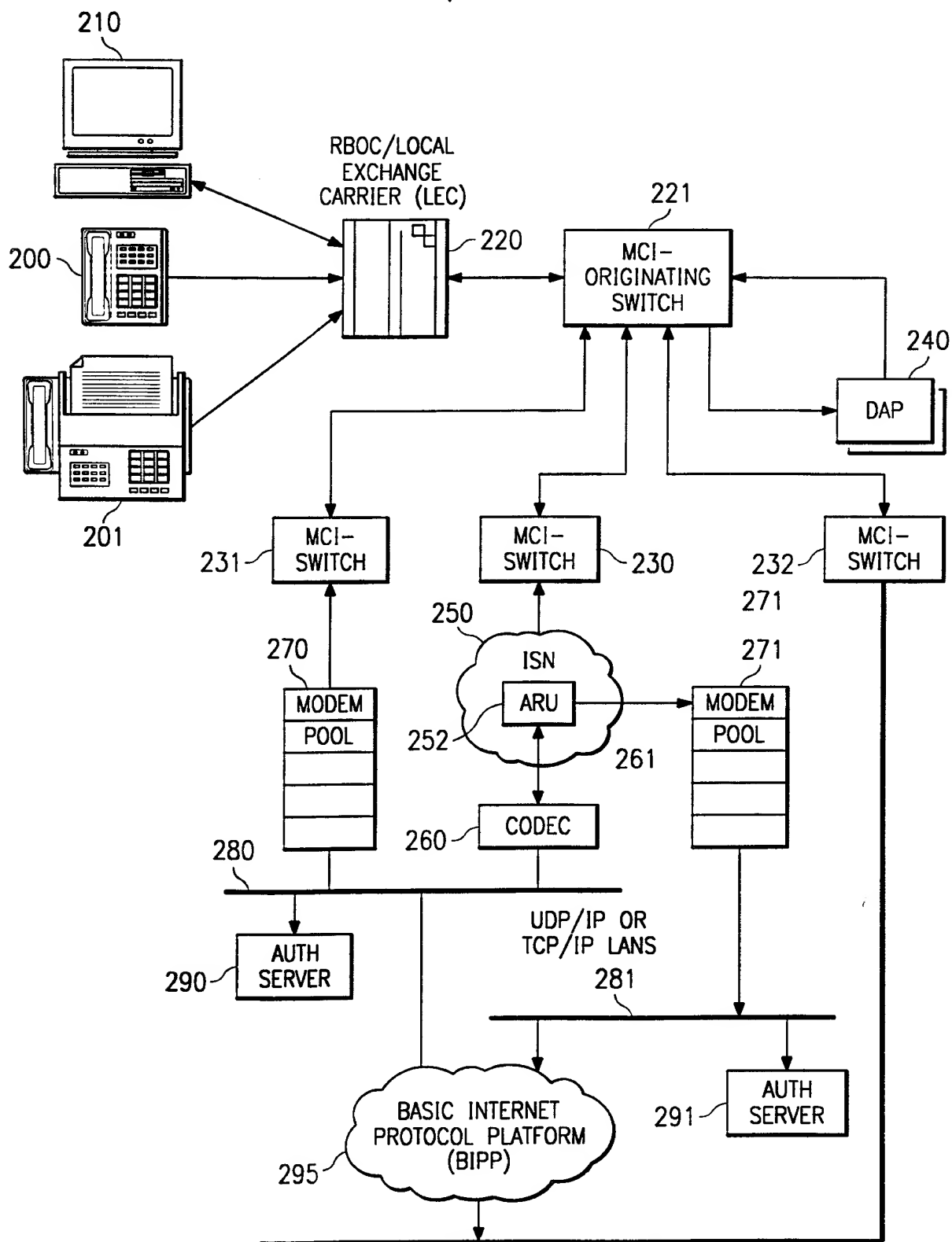


FIG. 1C

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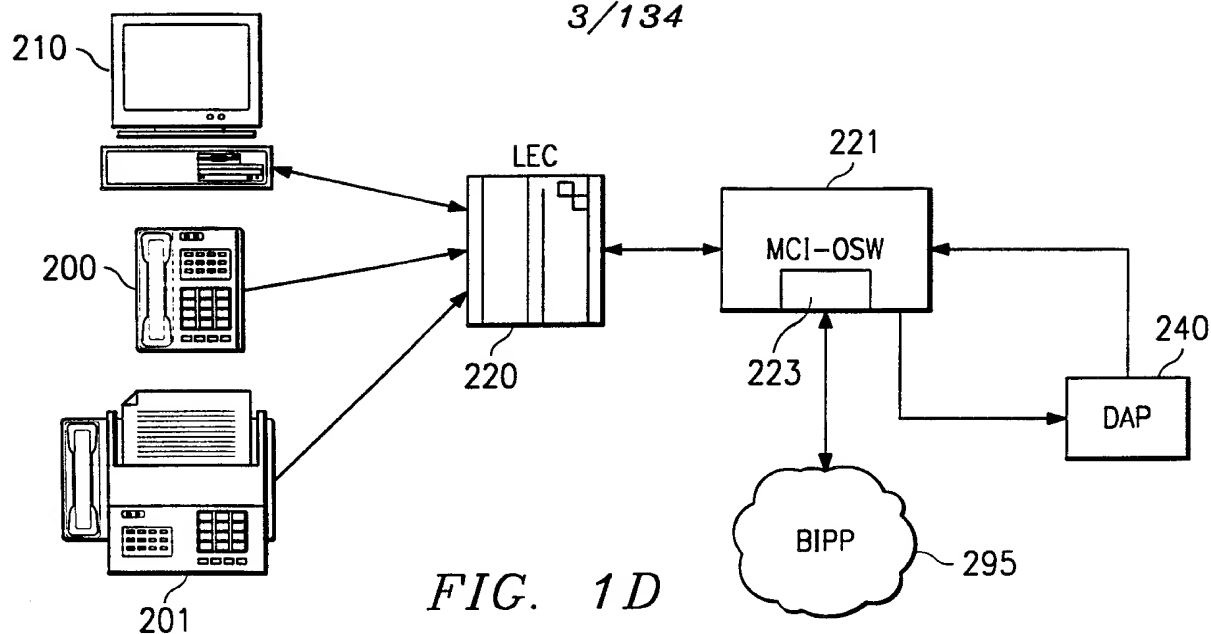


FIG. 1D

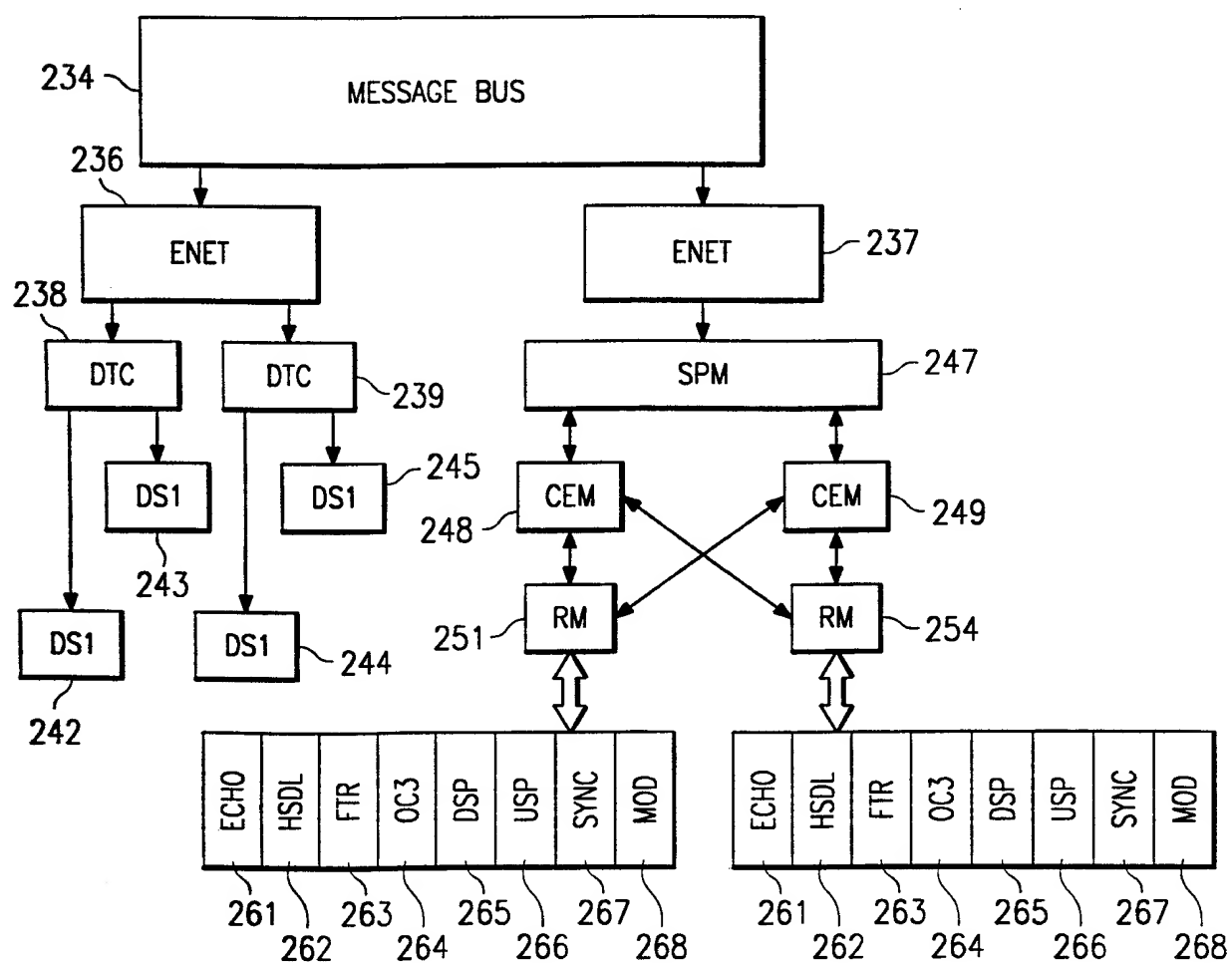


FIG. 1E

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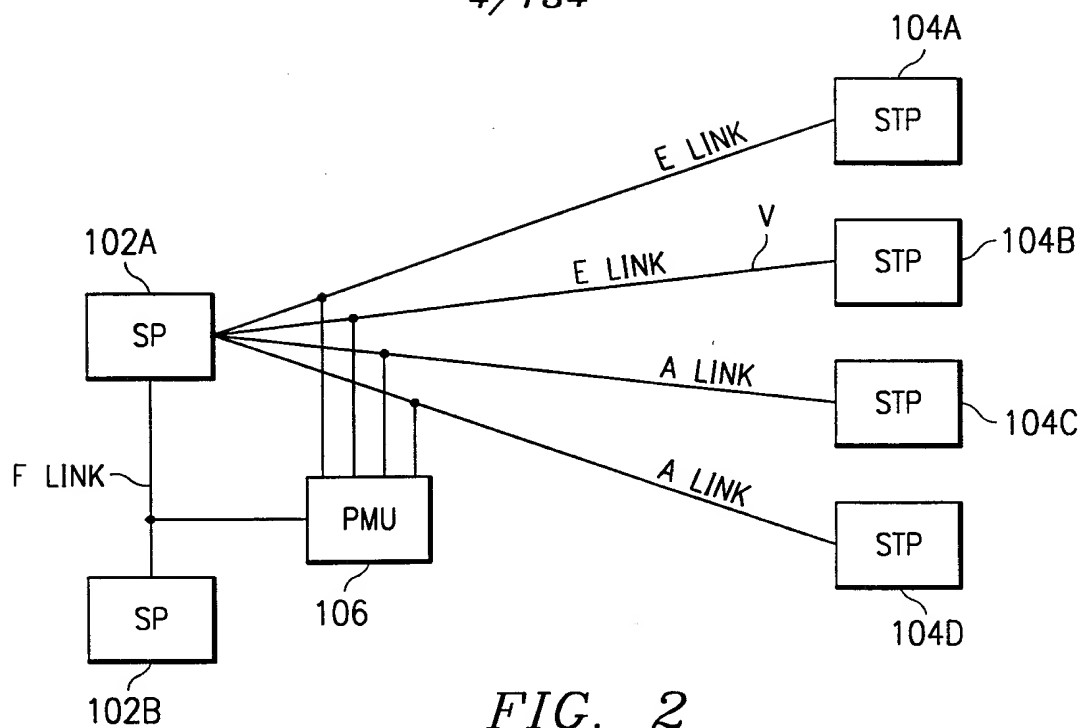


FIG. 2

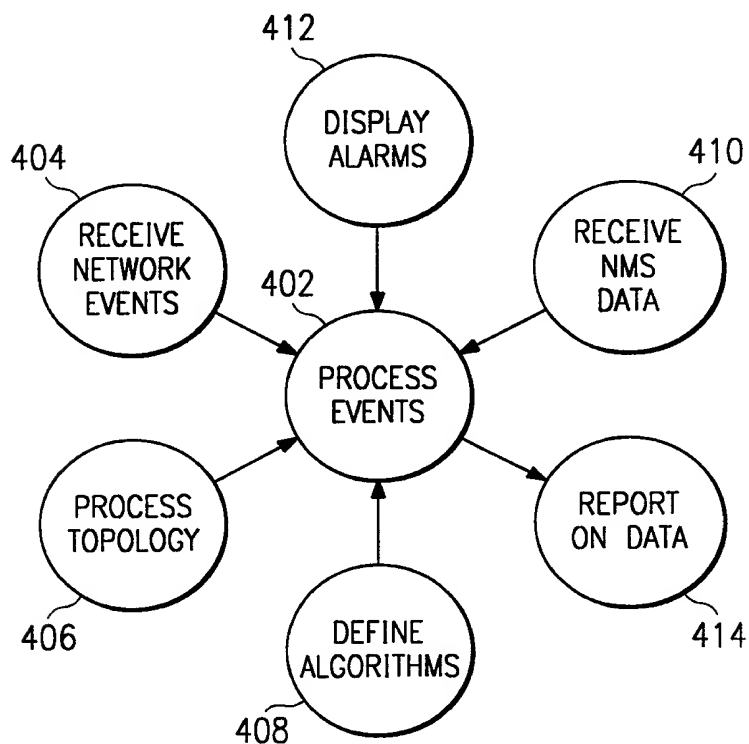


FIG. 4

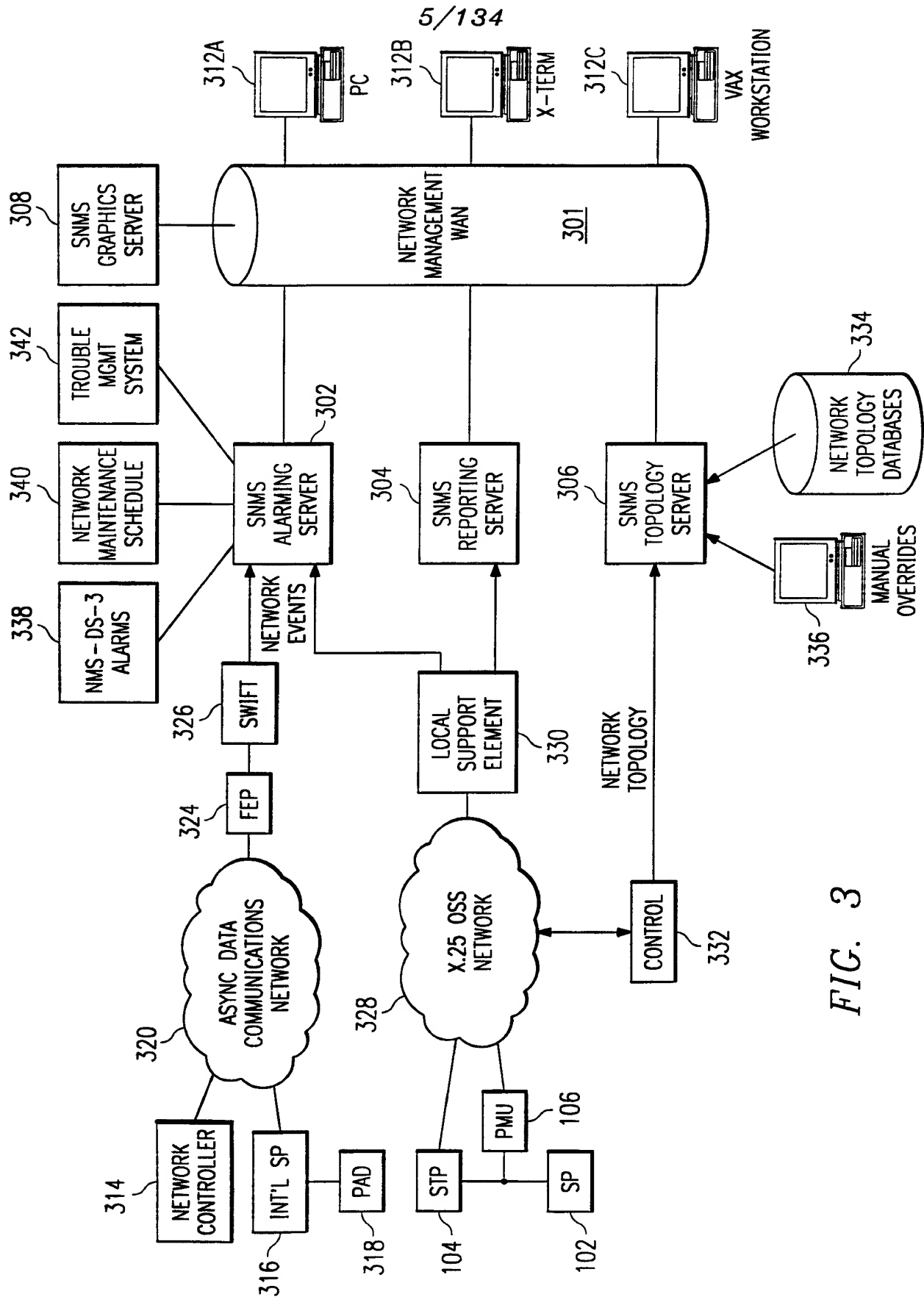


FIG. 3

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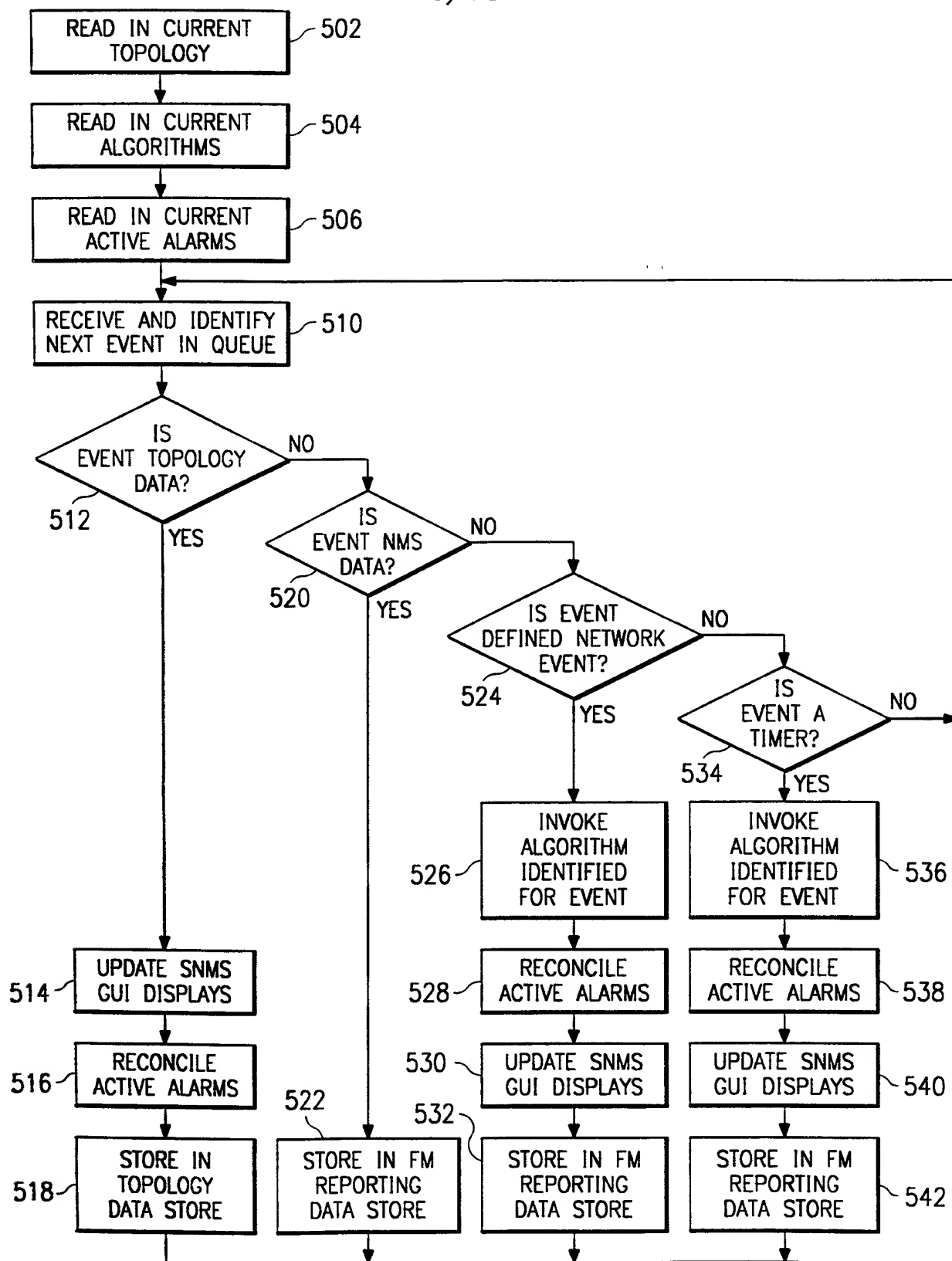


FIG. 5



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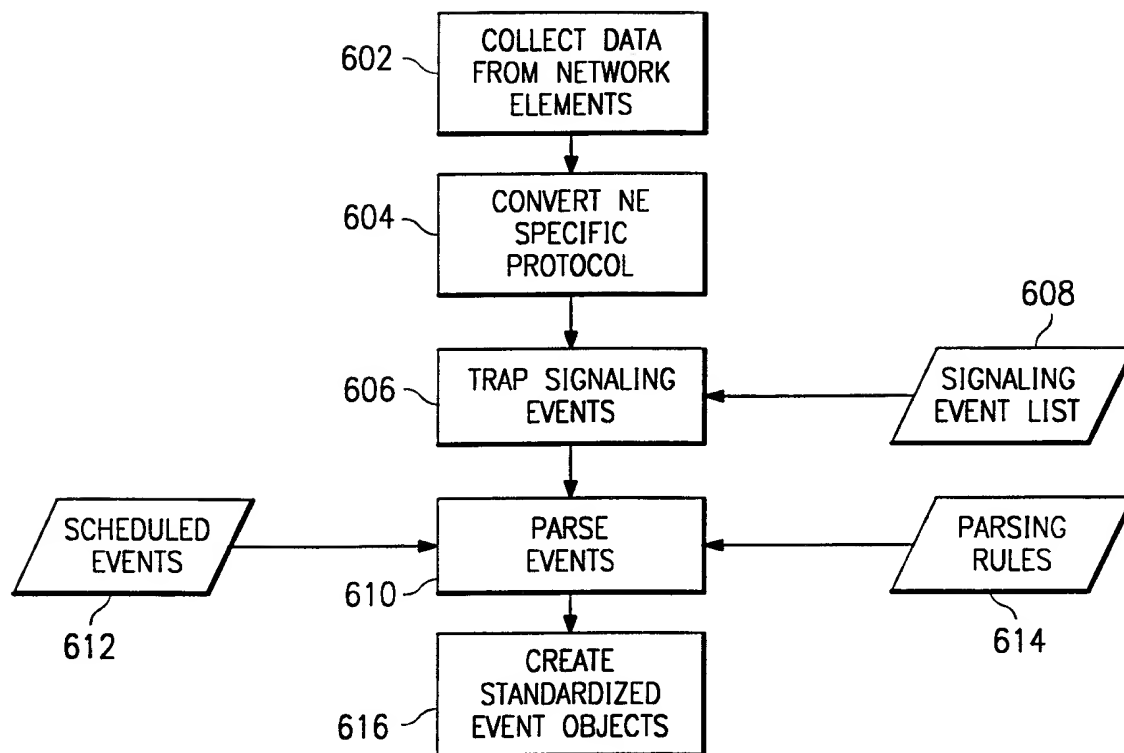


FIG. 6

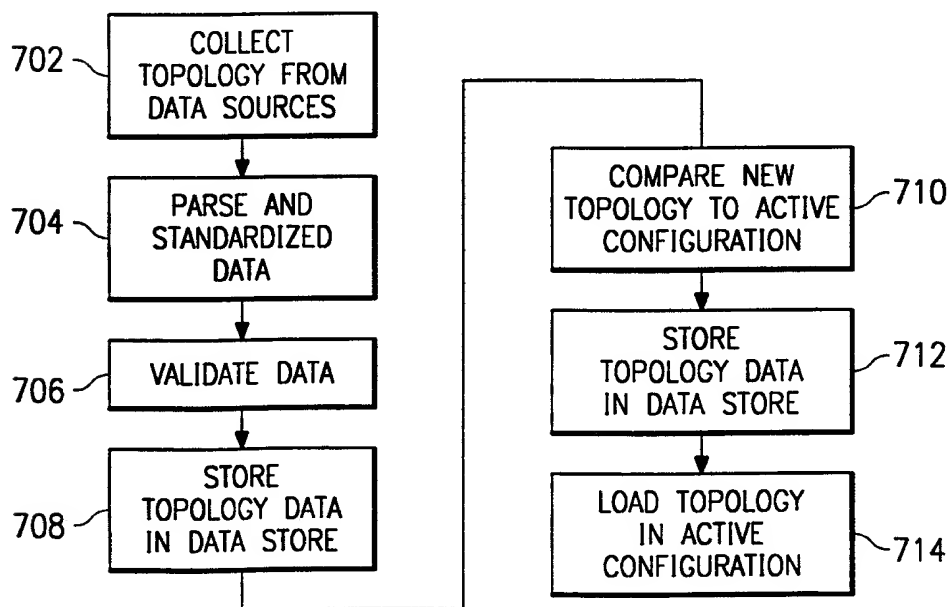
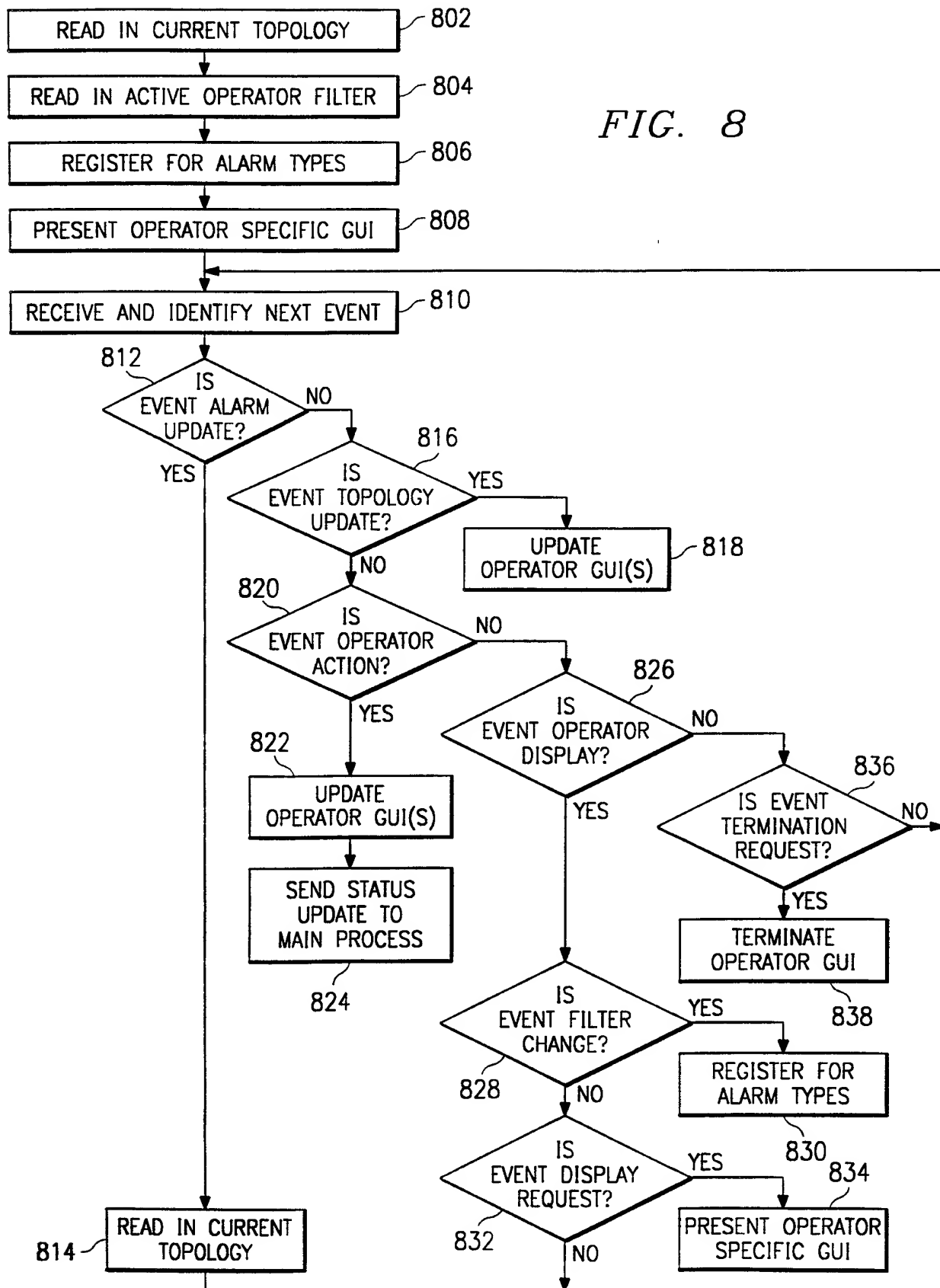


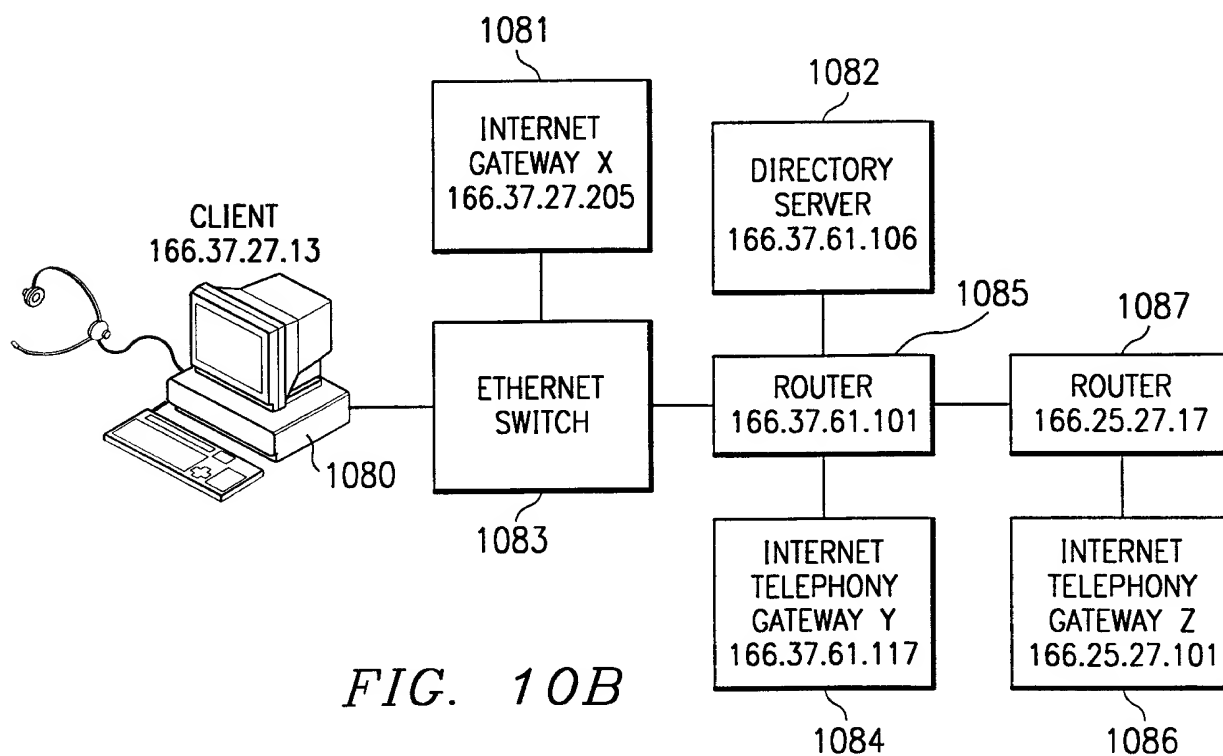
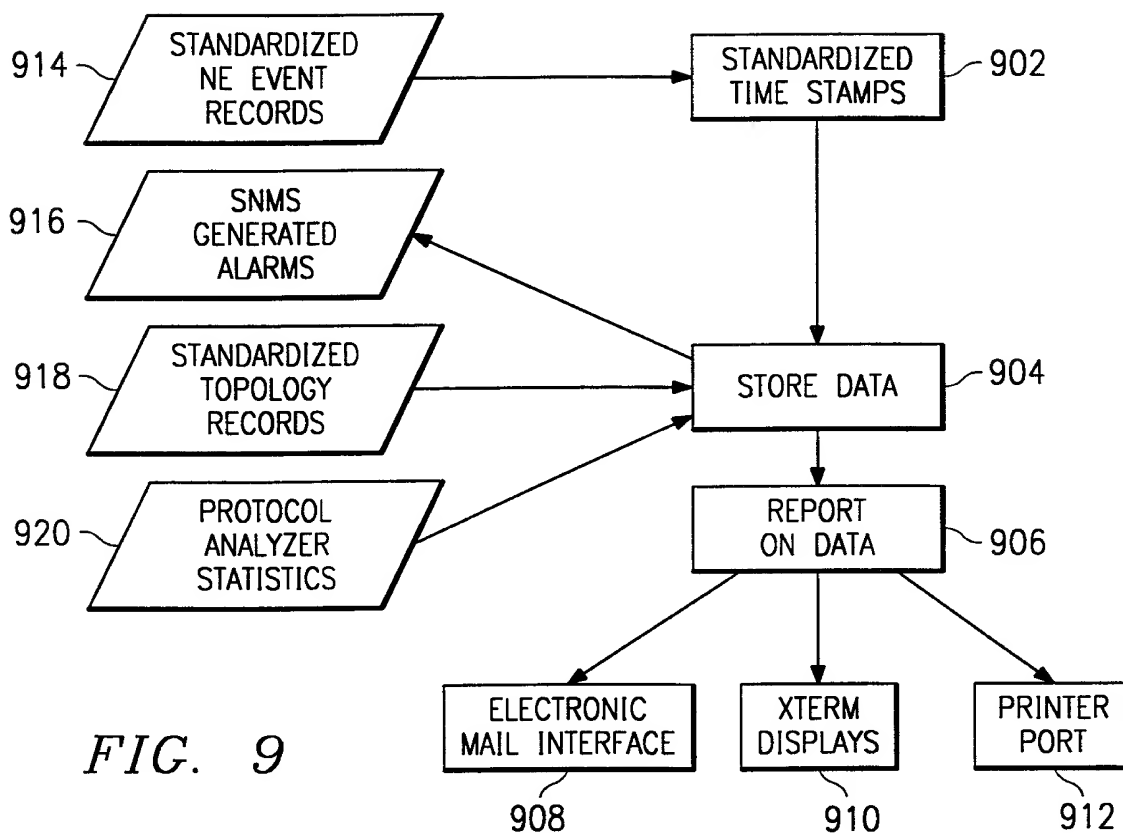
FIG. 7

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FIG. 8



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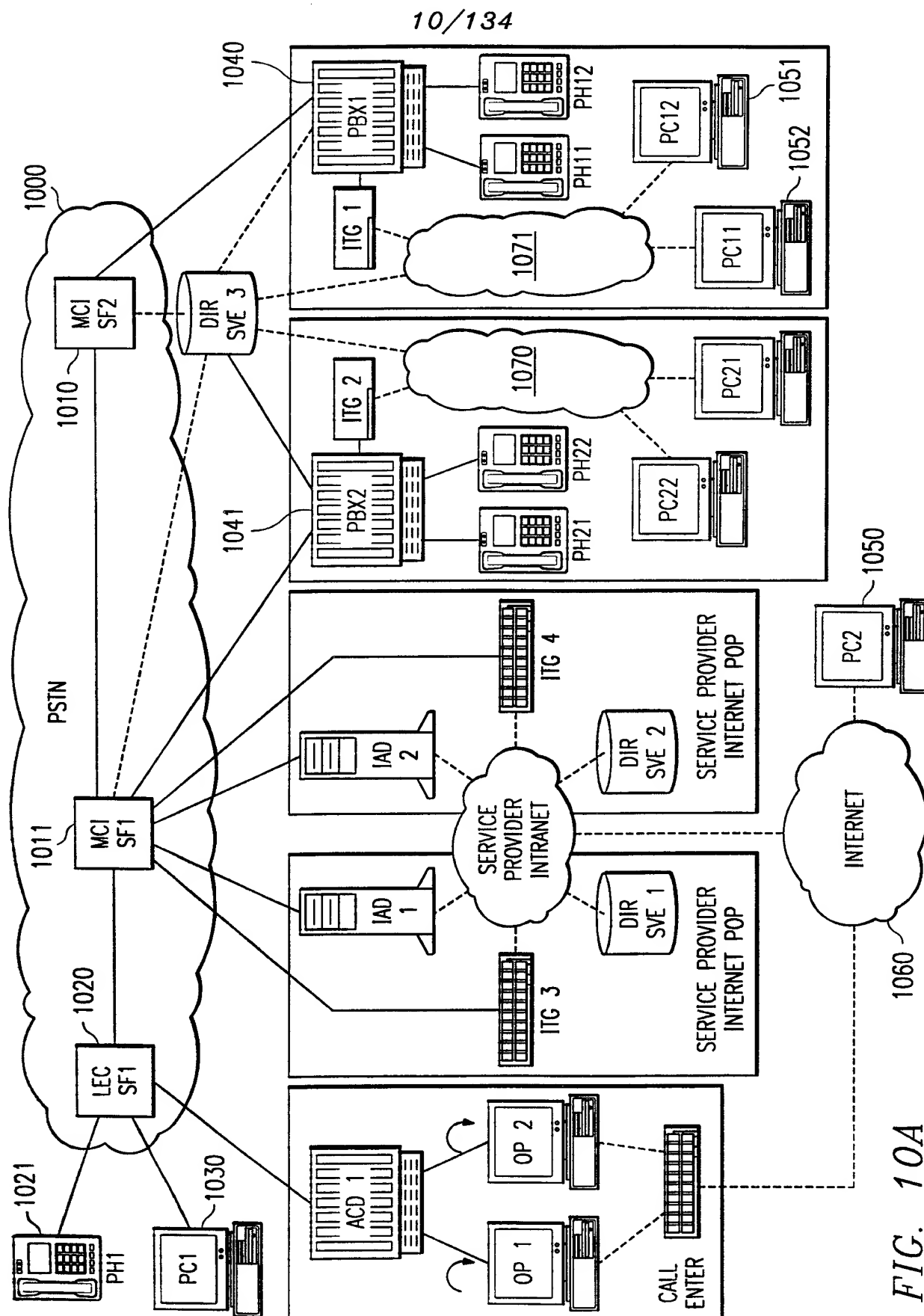


FIG. 10A

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## VNET PC TO PC

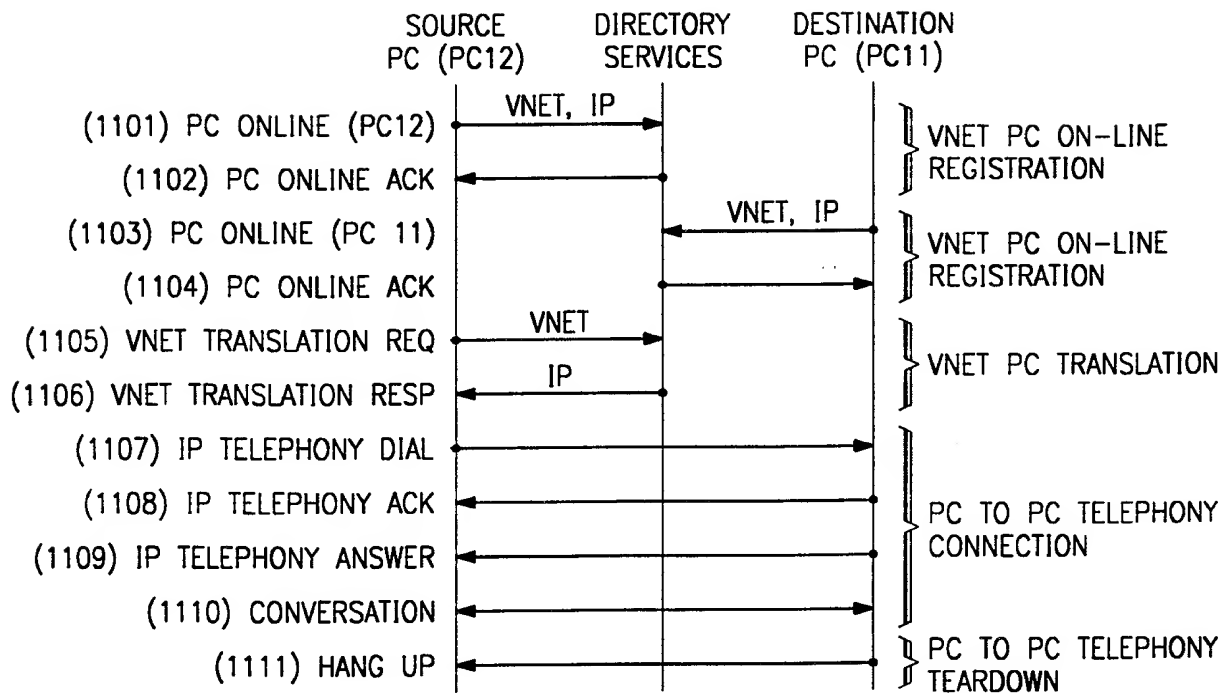


FIG. 11

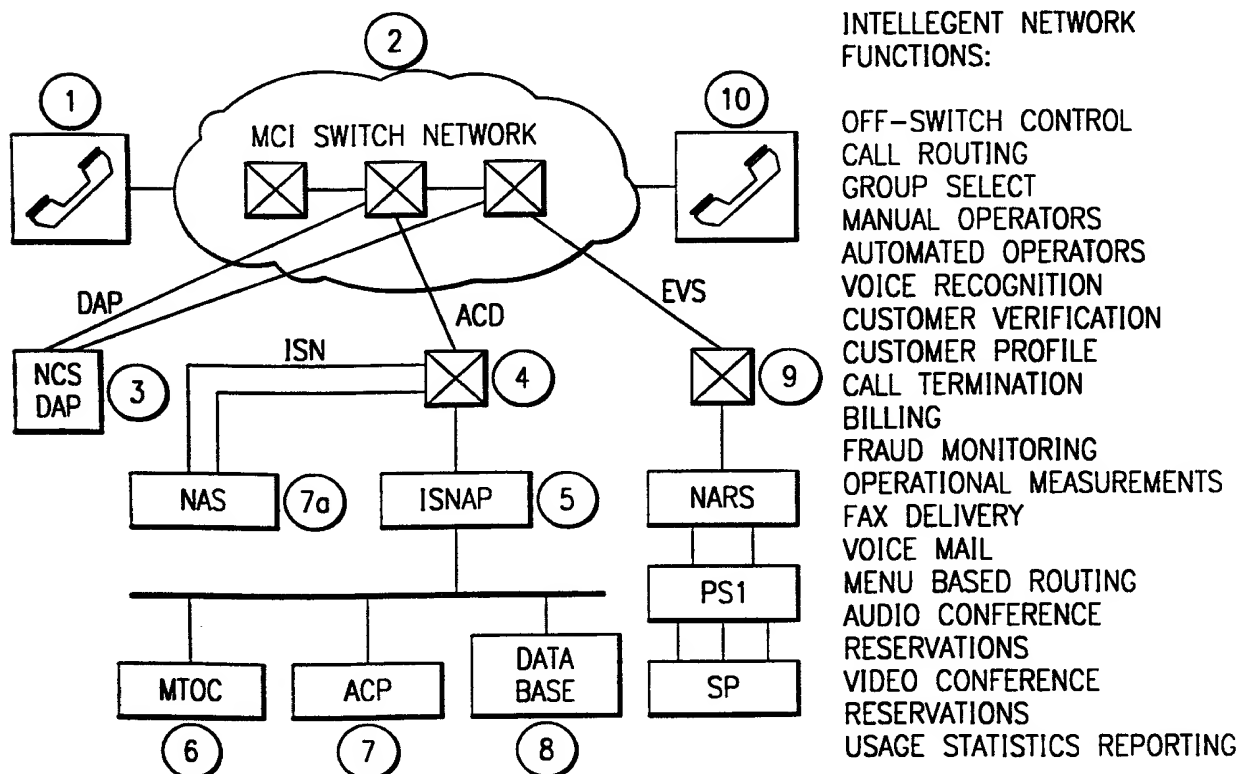


FIG. 19A

VNET PC TO PHONE 1  
(ITG AS AN OUT OF NETWORK ELEMENT, USING PSTN)

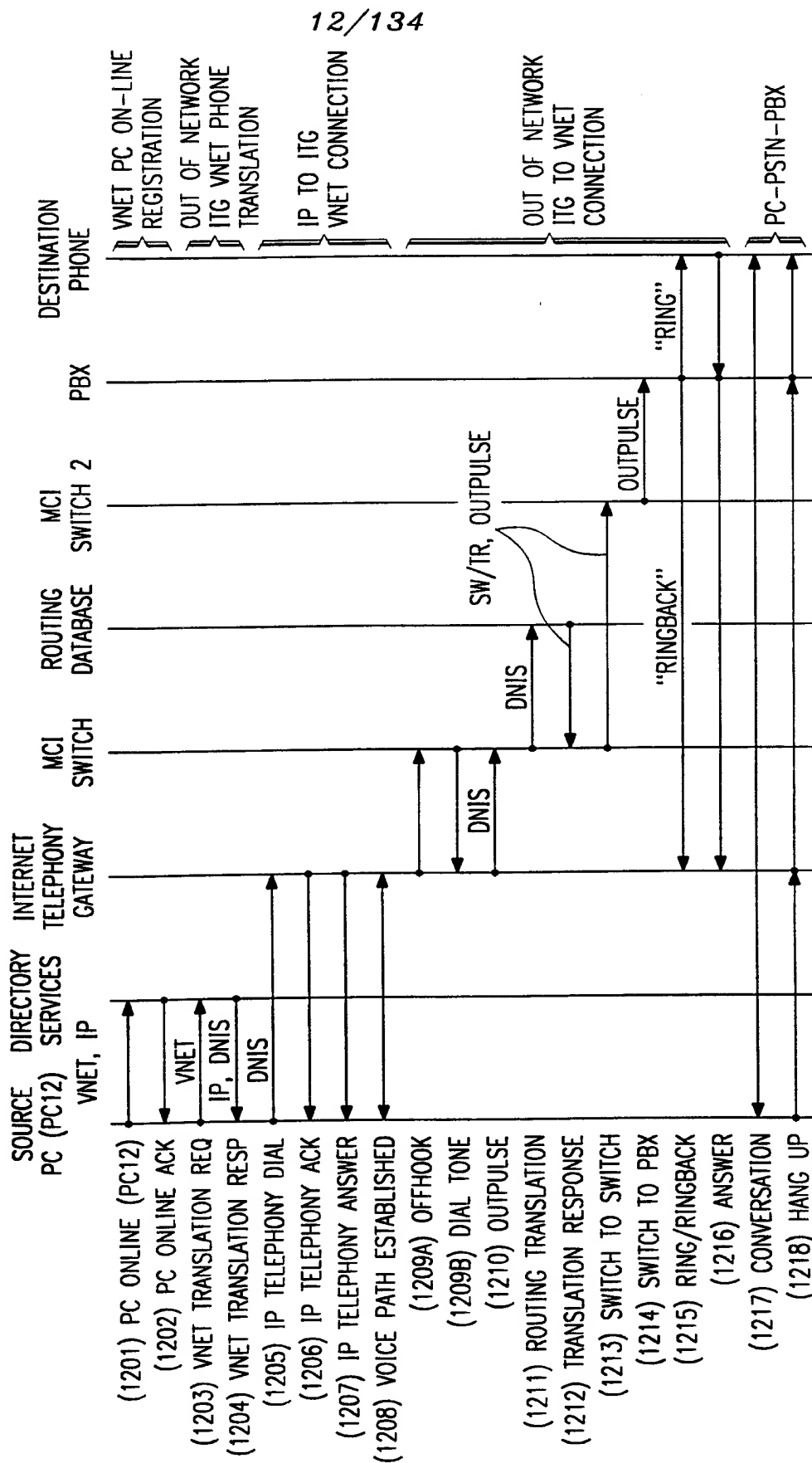


FIG. 12

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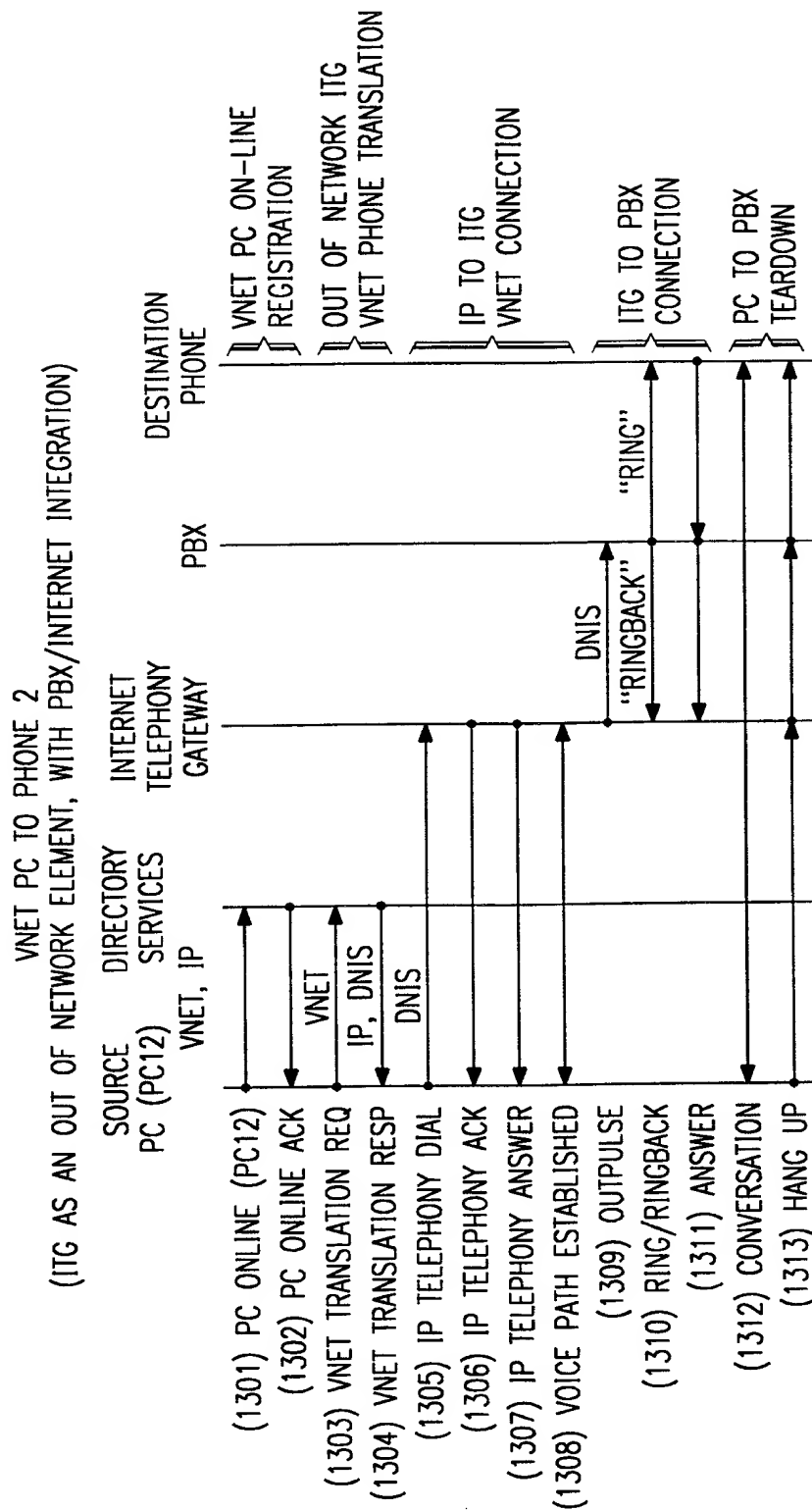


FIG. 13

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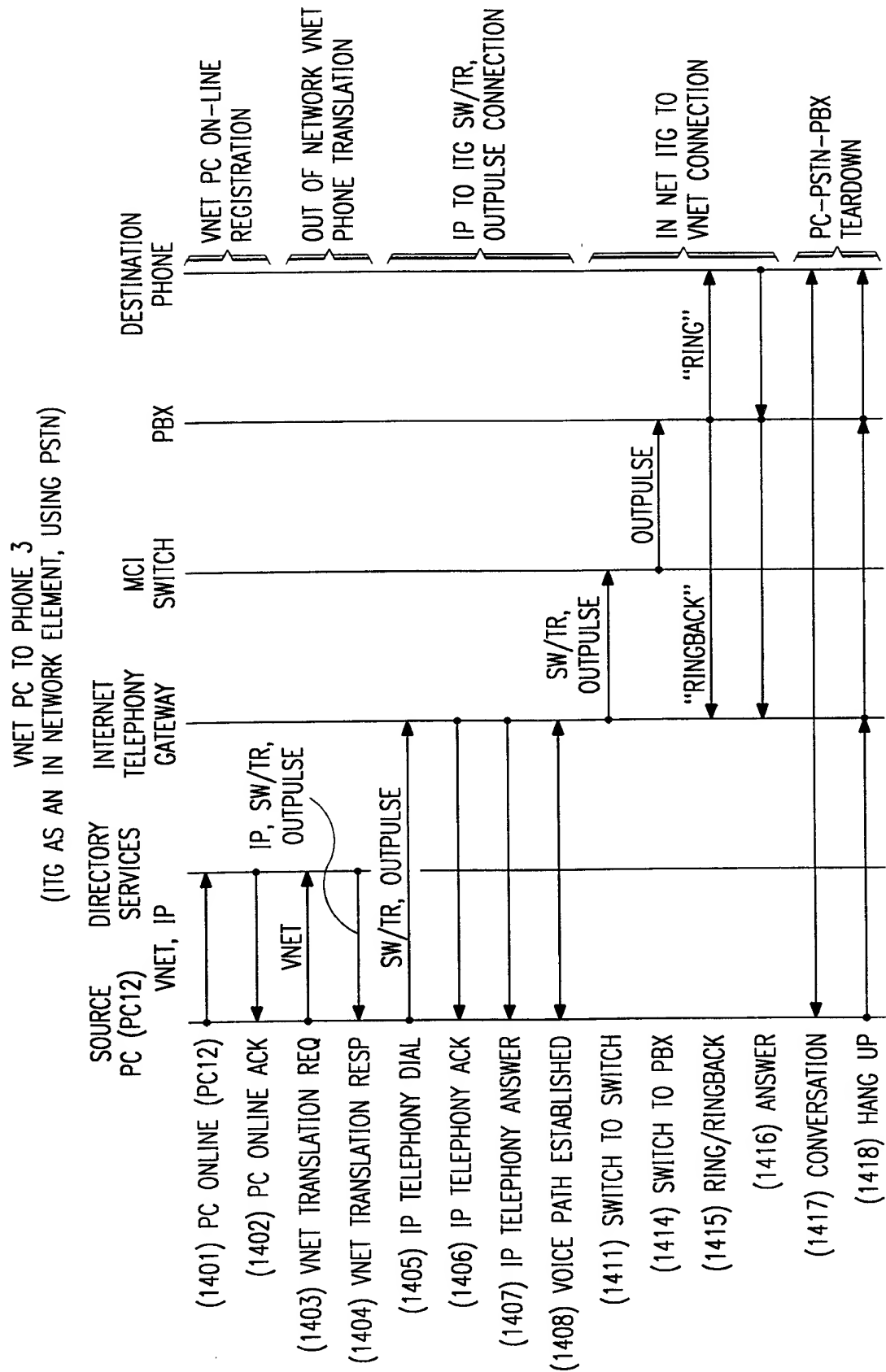


FIG. 14



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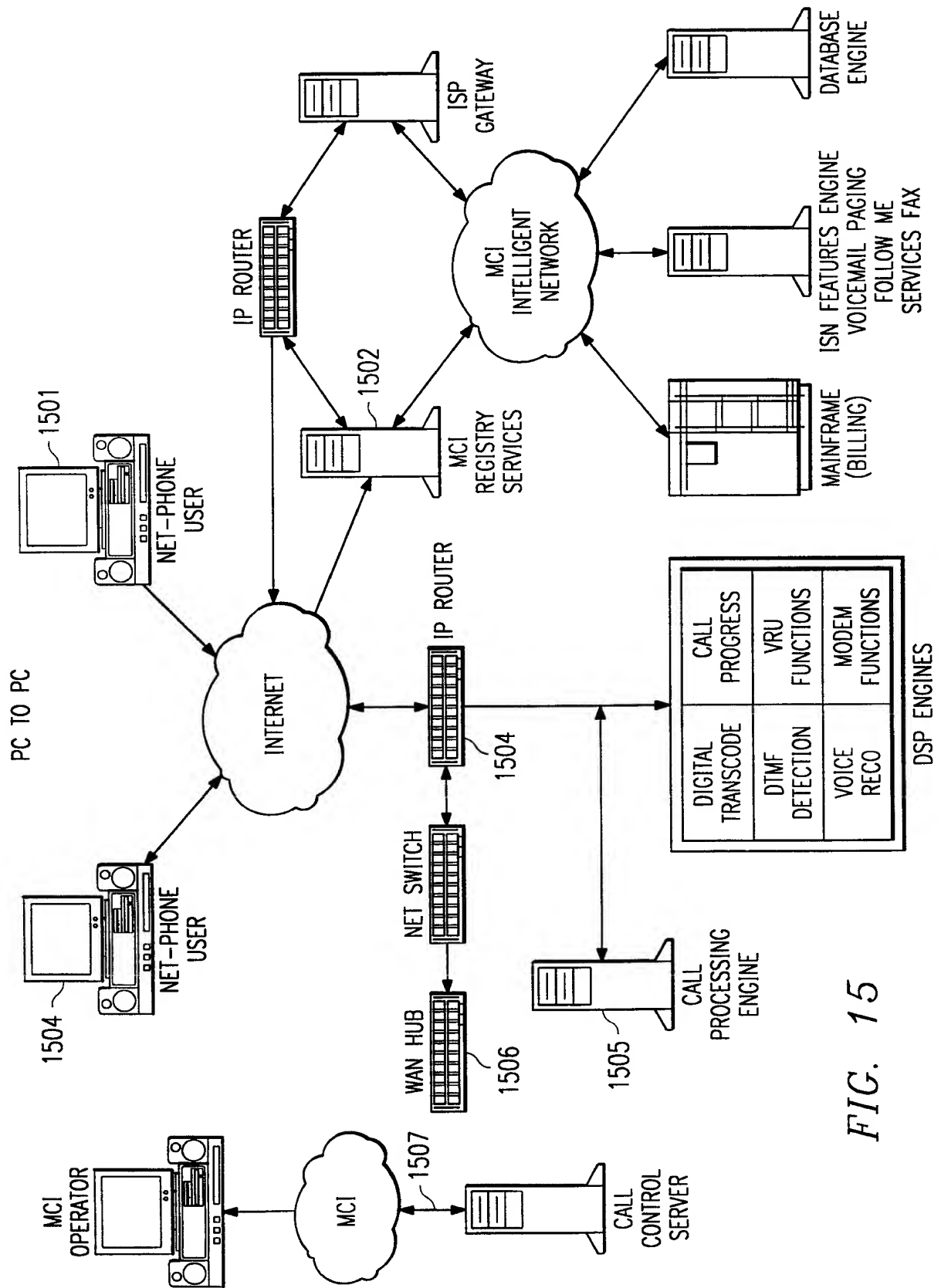


FIG. 15

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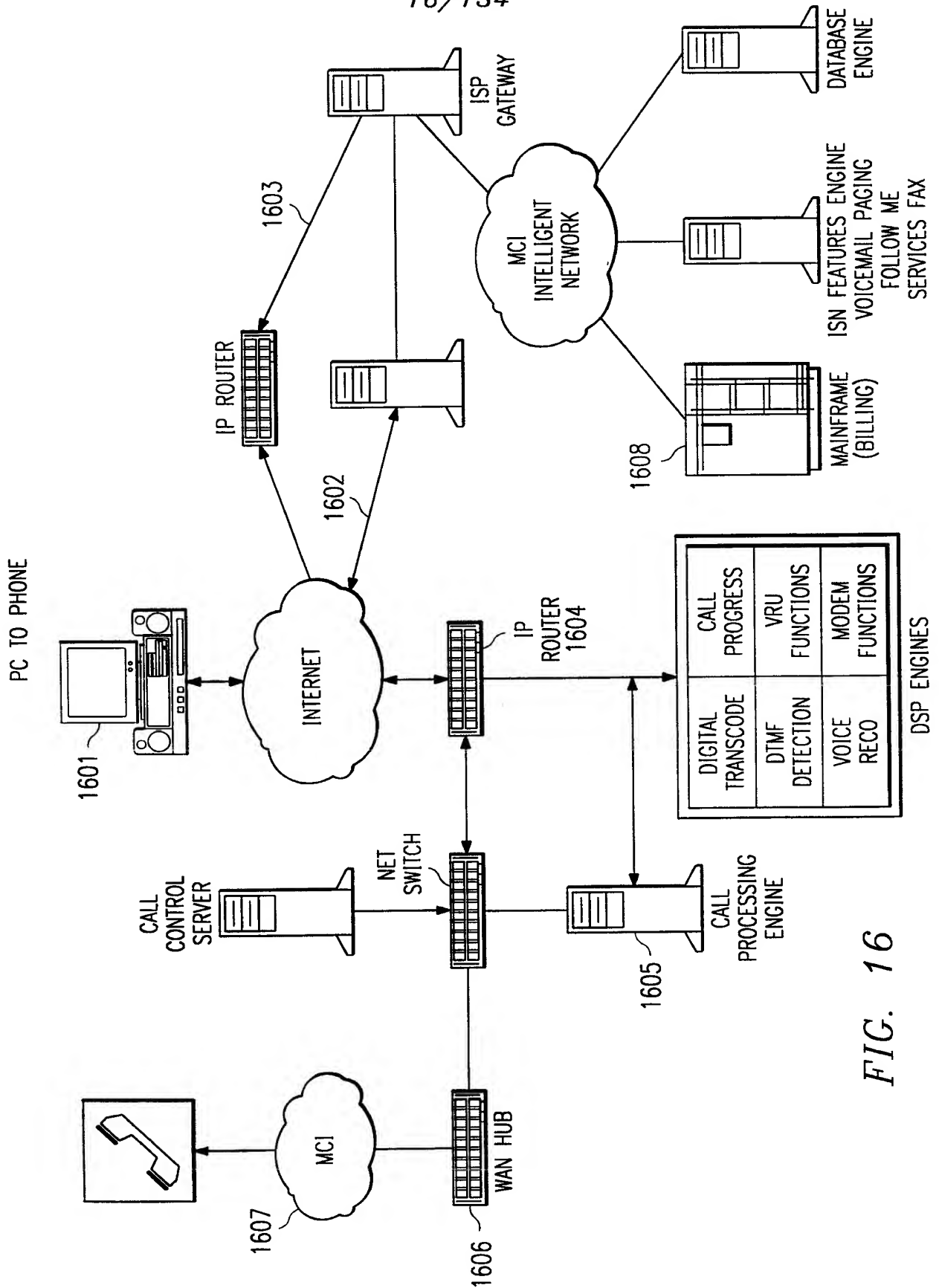


FIG. 16

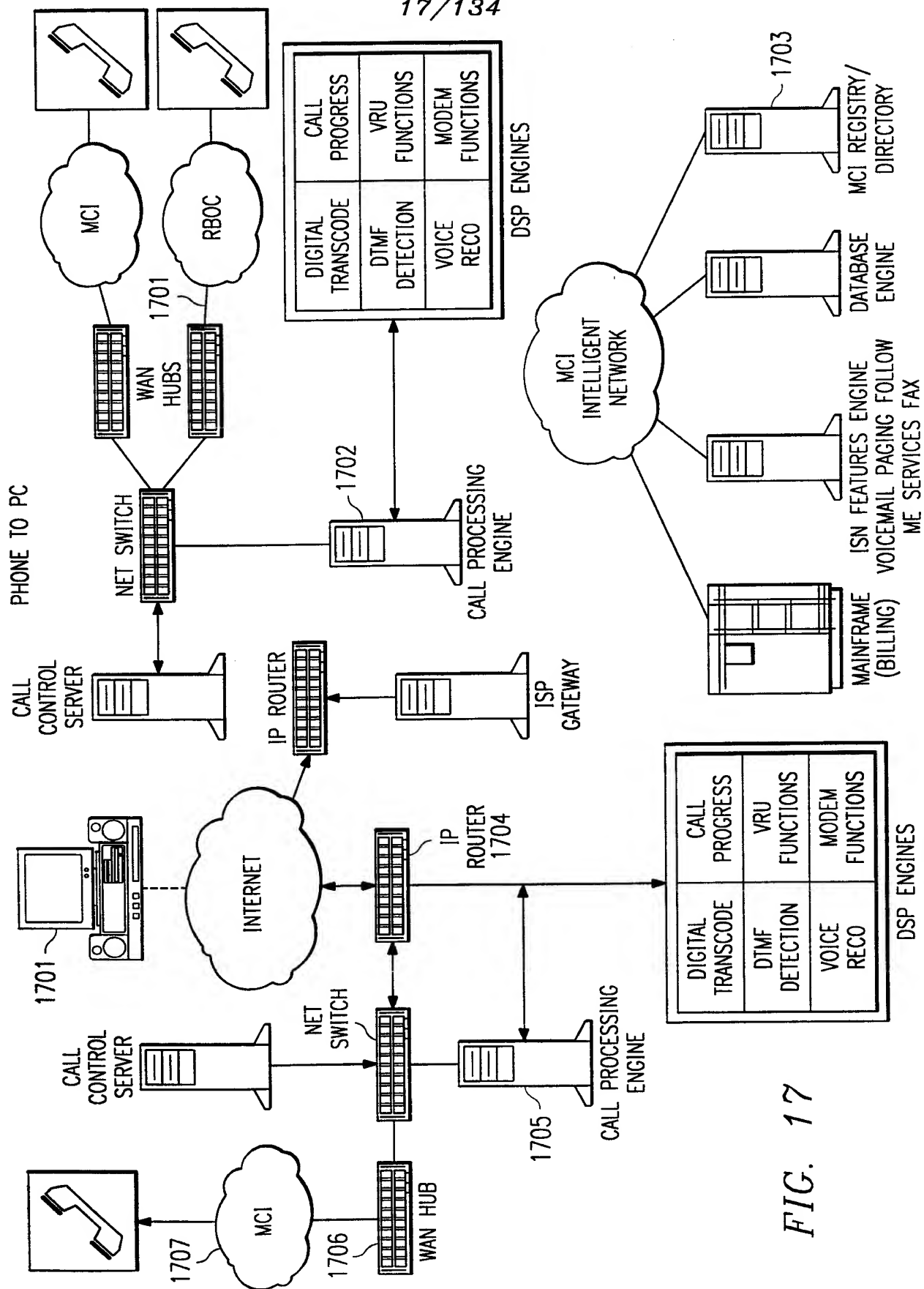
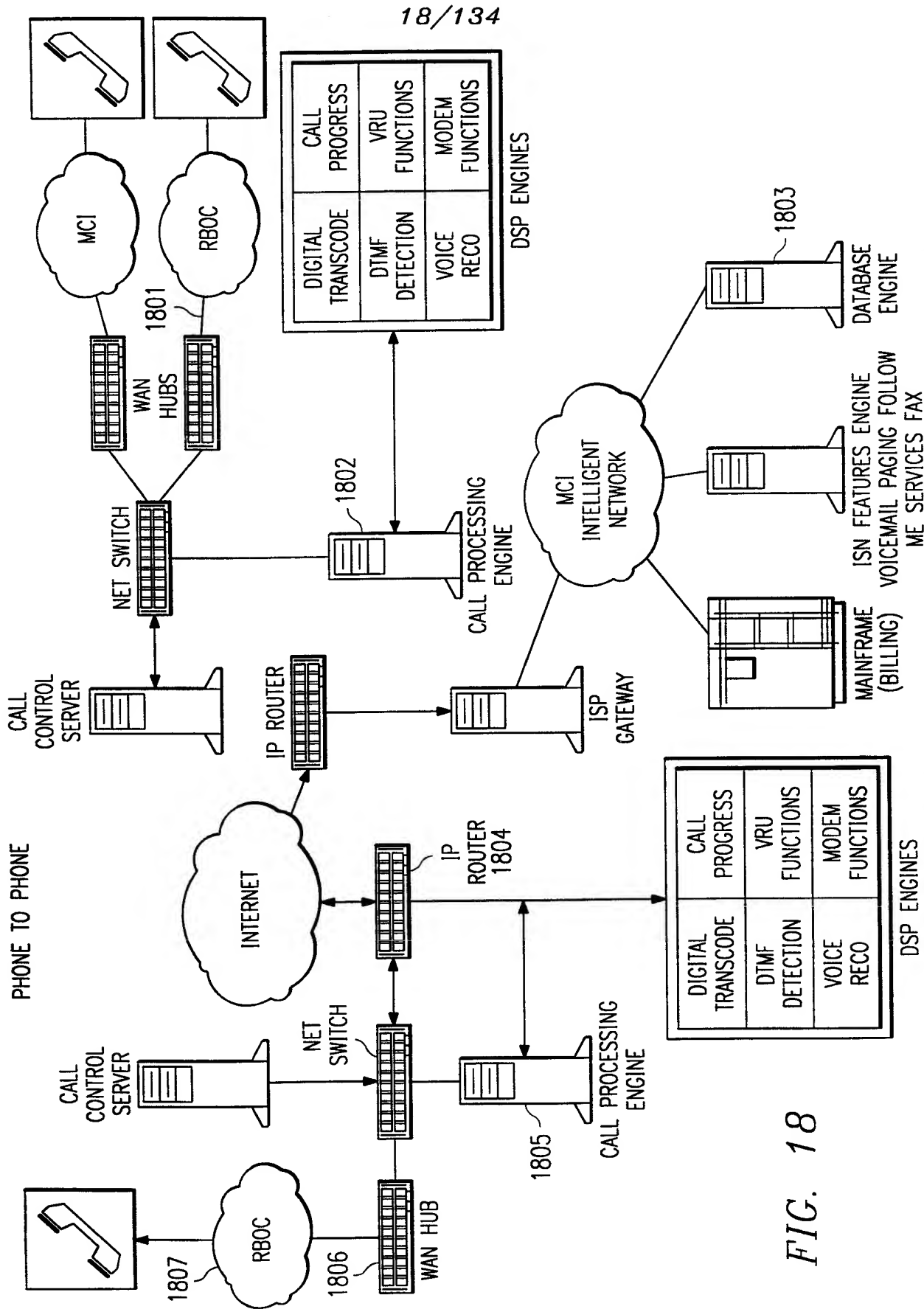


FIG. 17



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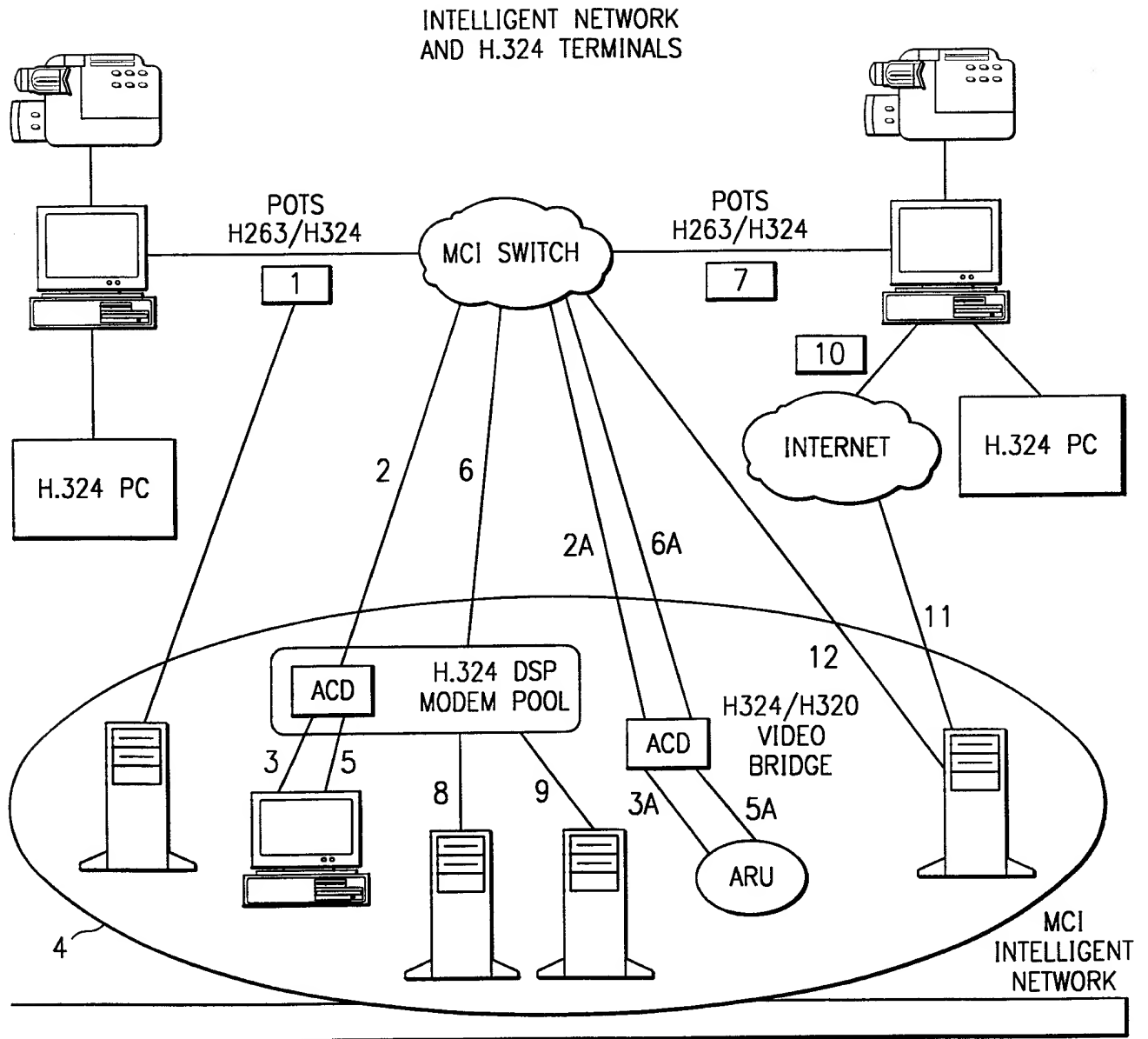


FIG. 19B

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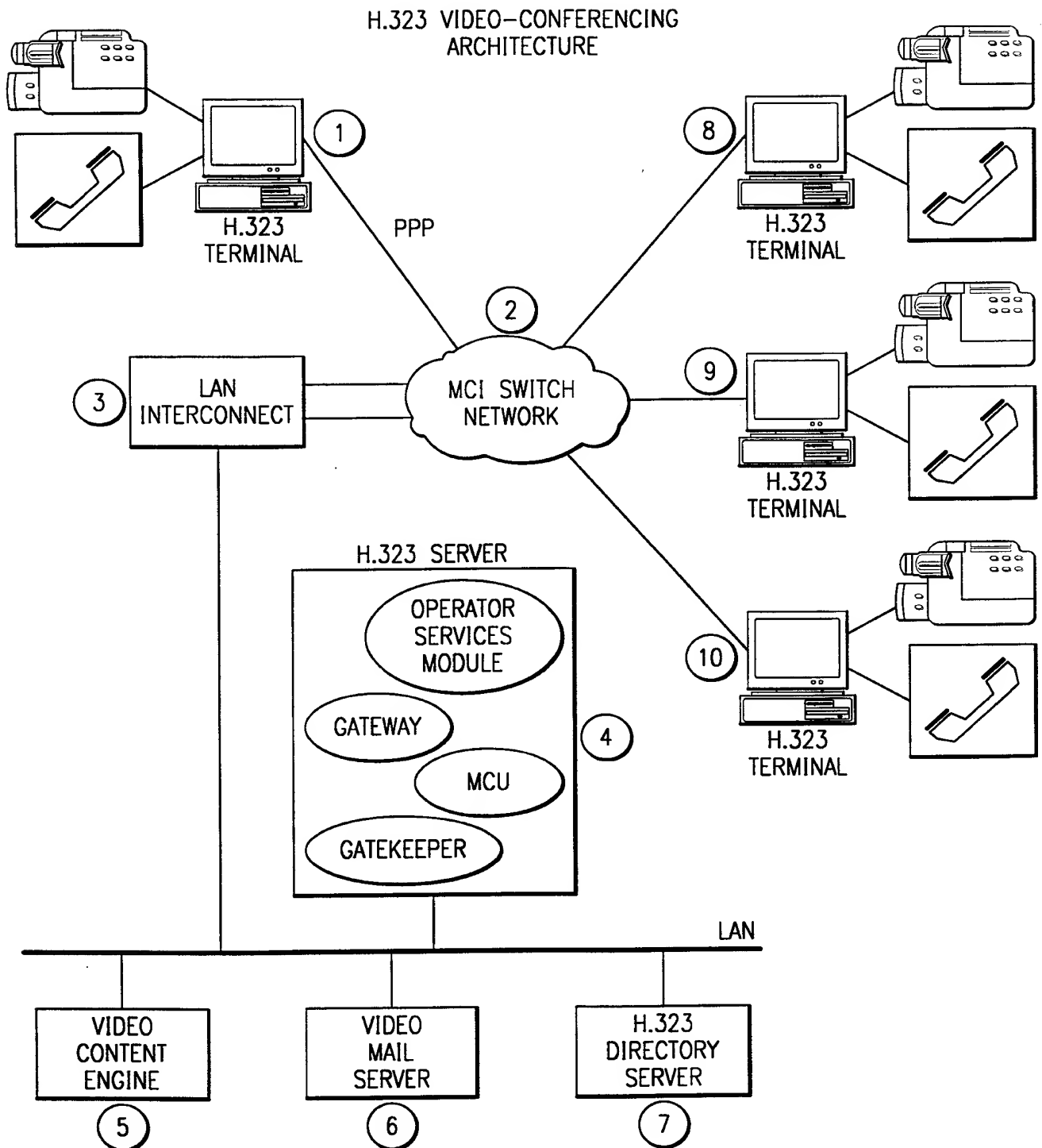


FIG. 19C

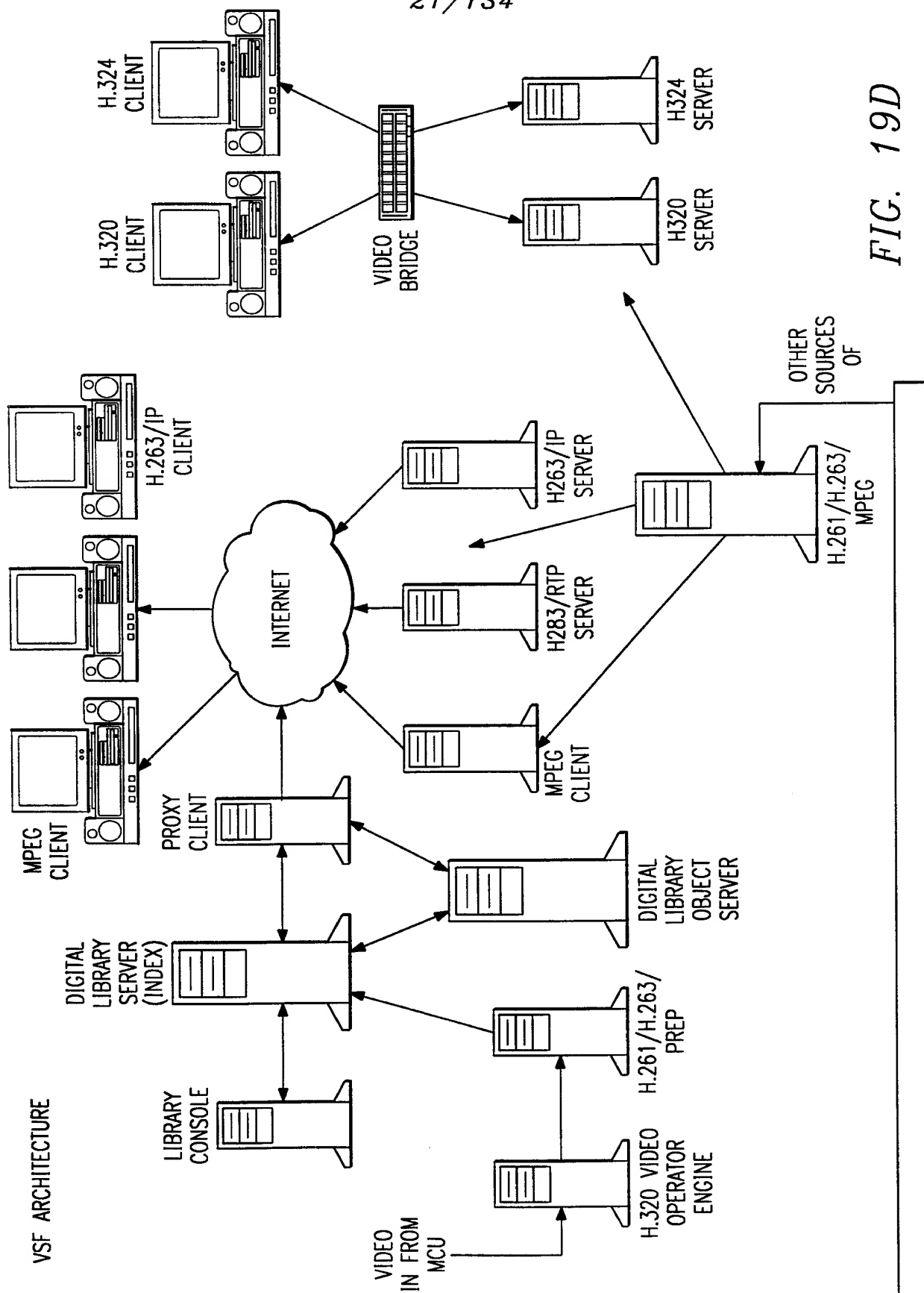


FIG. 19D

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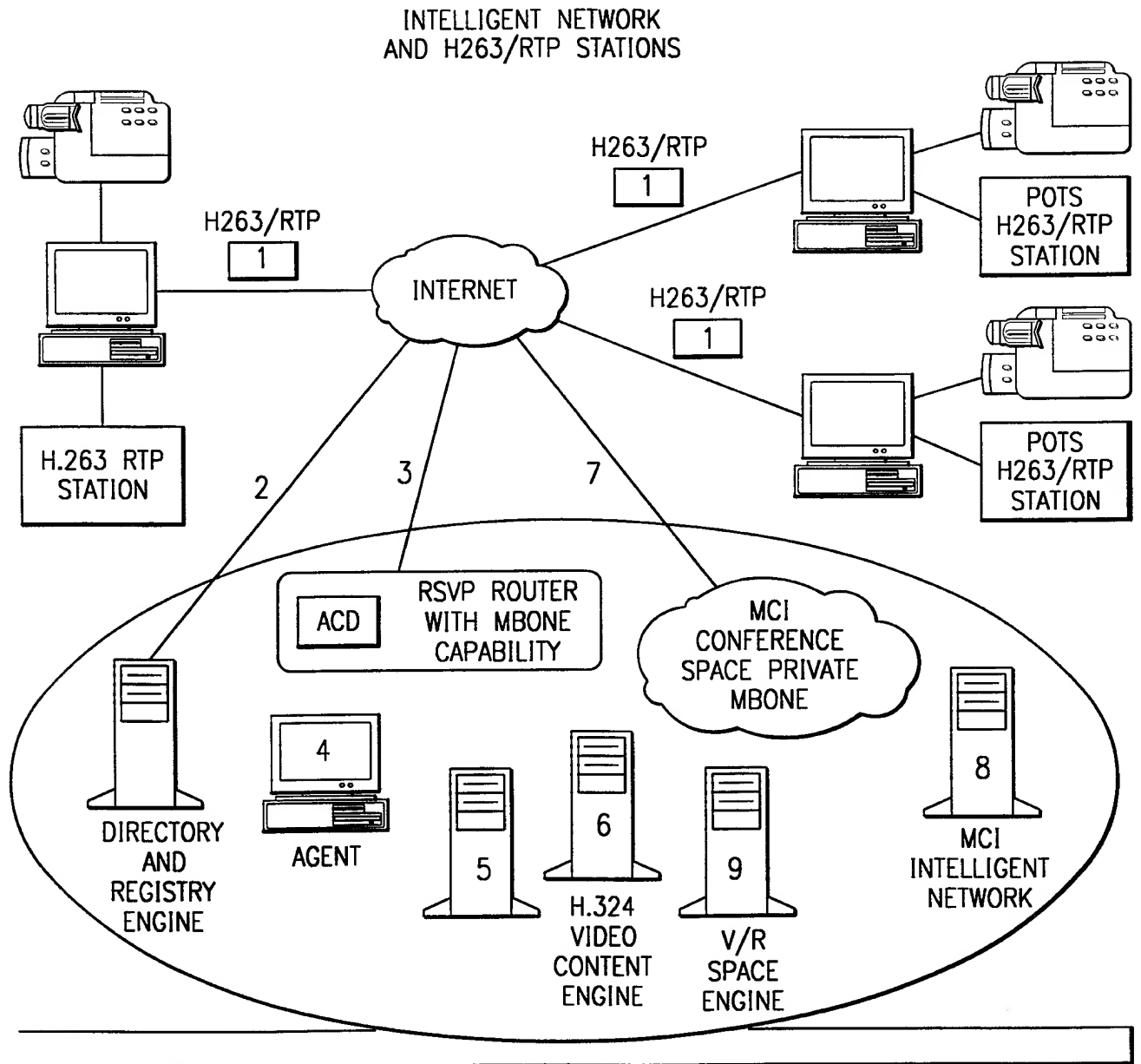


FIG. 19E



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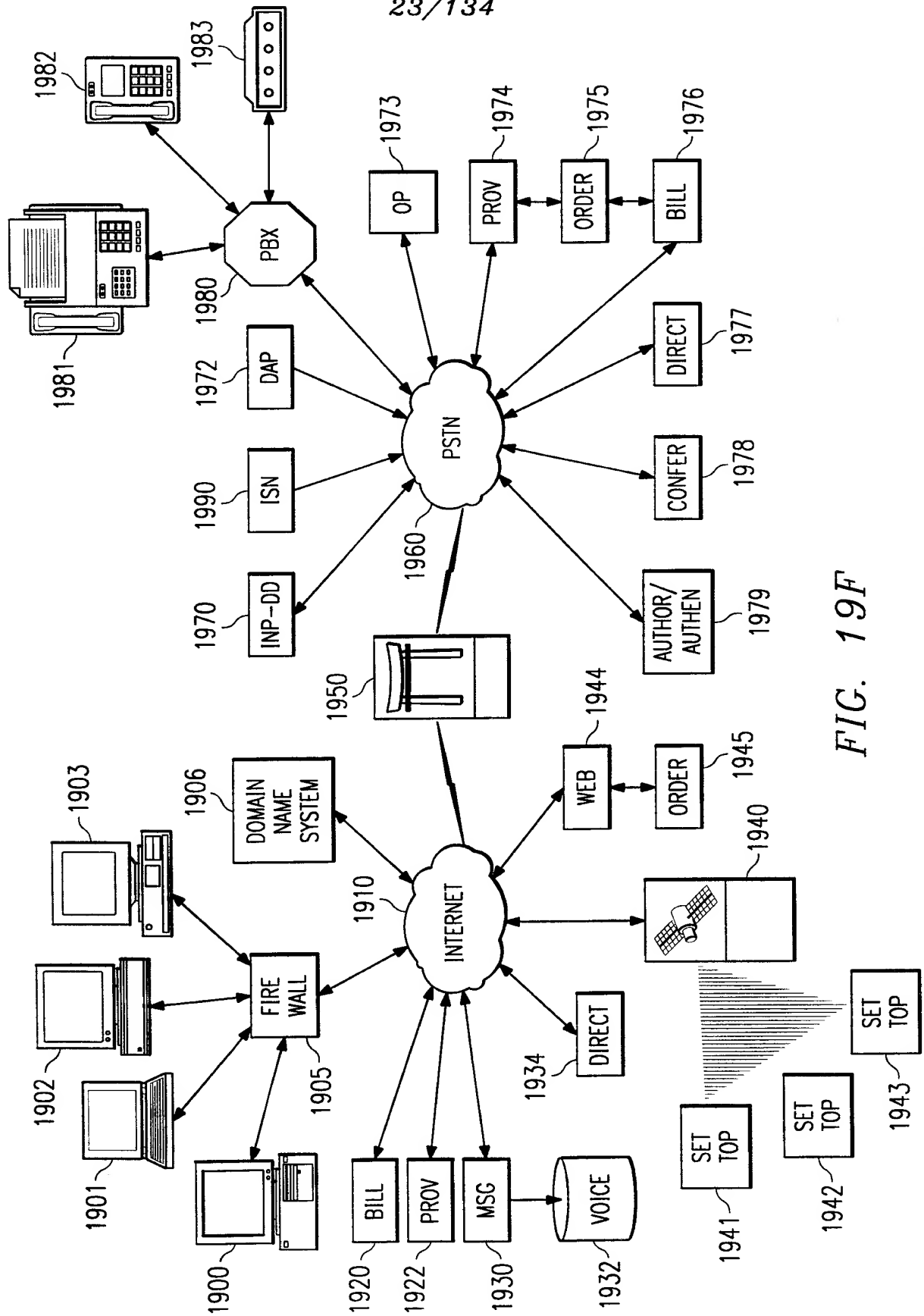


FIG. 19F

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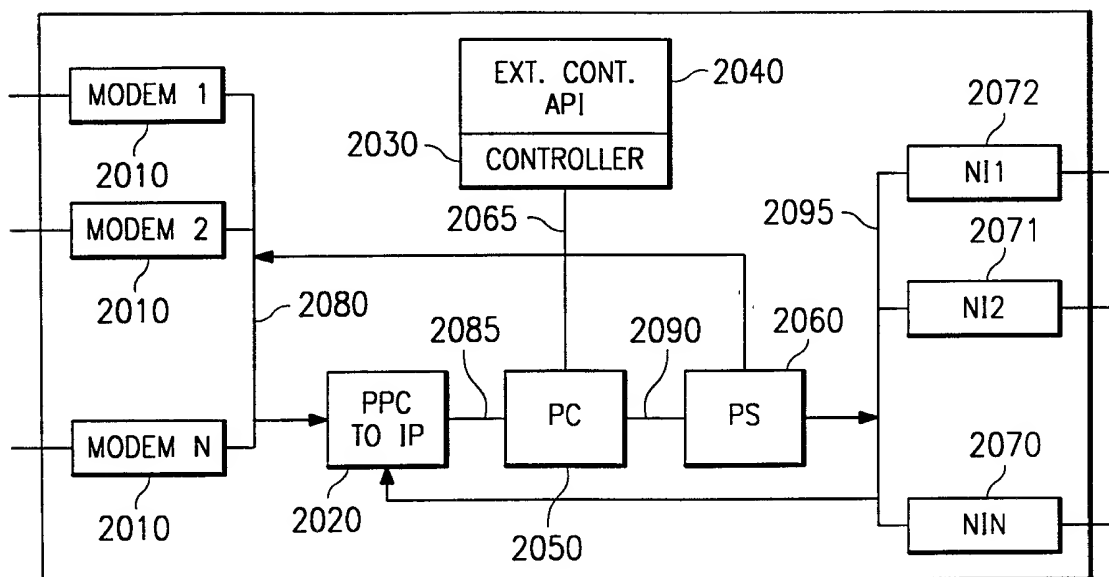


FIG. 19G

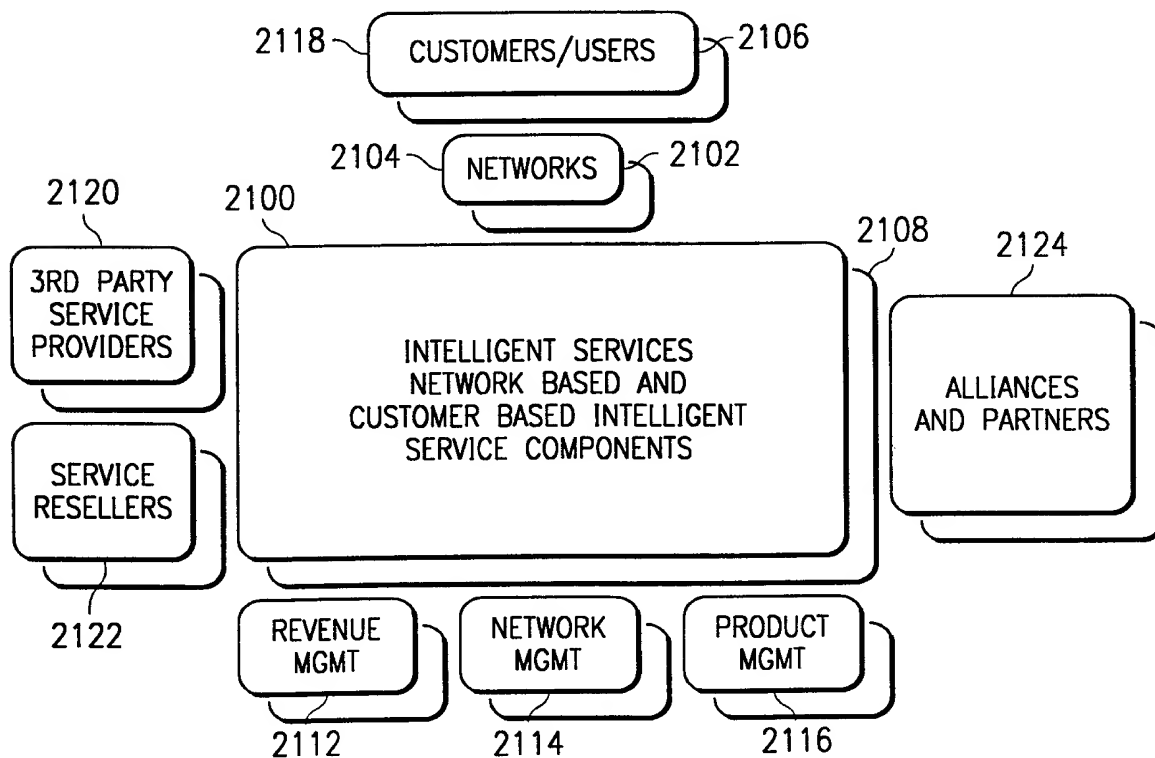


FIG. 20

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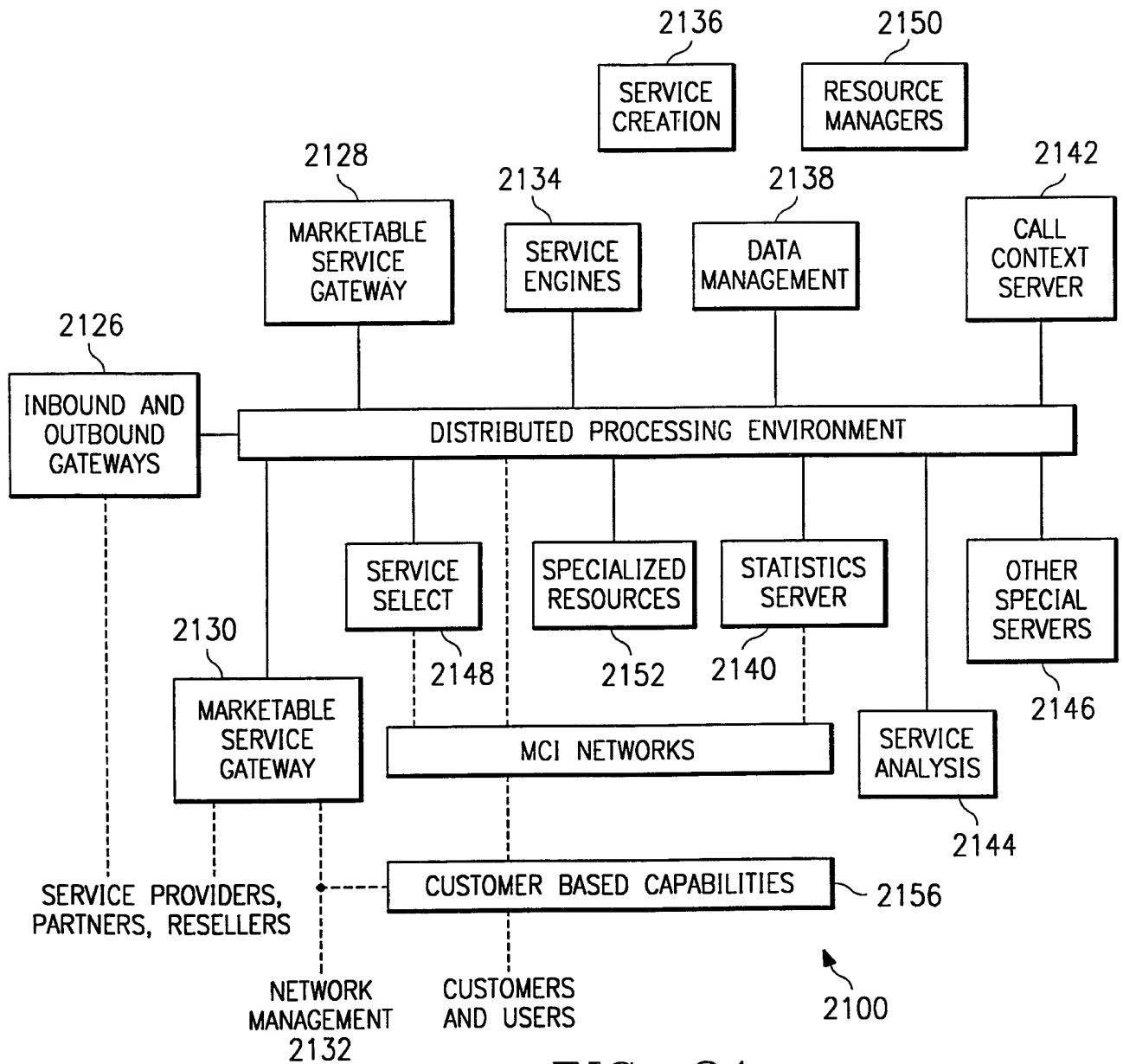


FIG. 21

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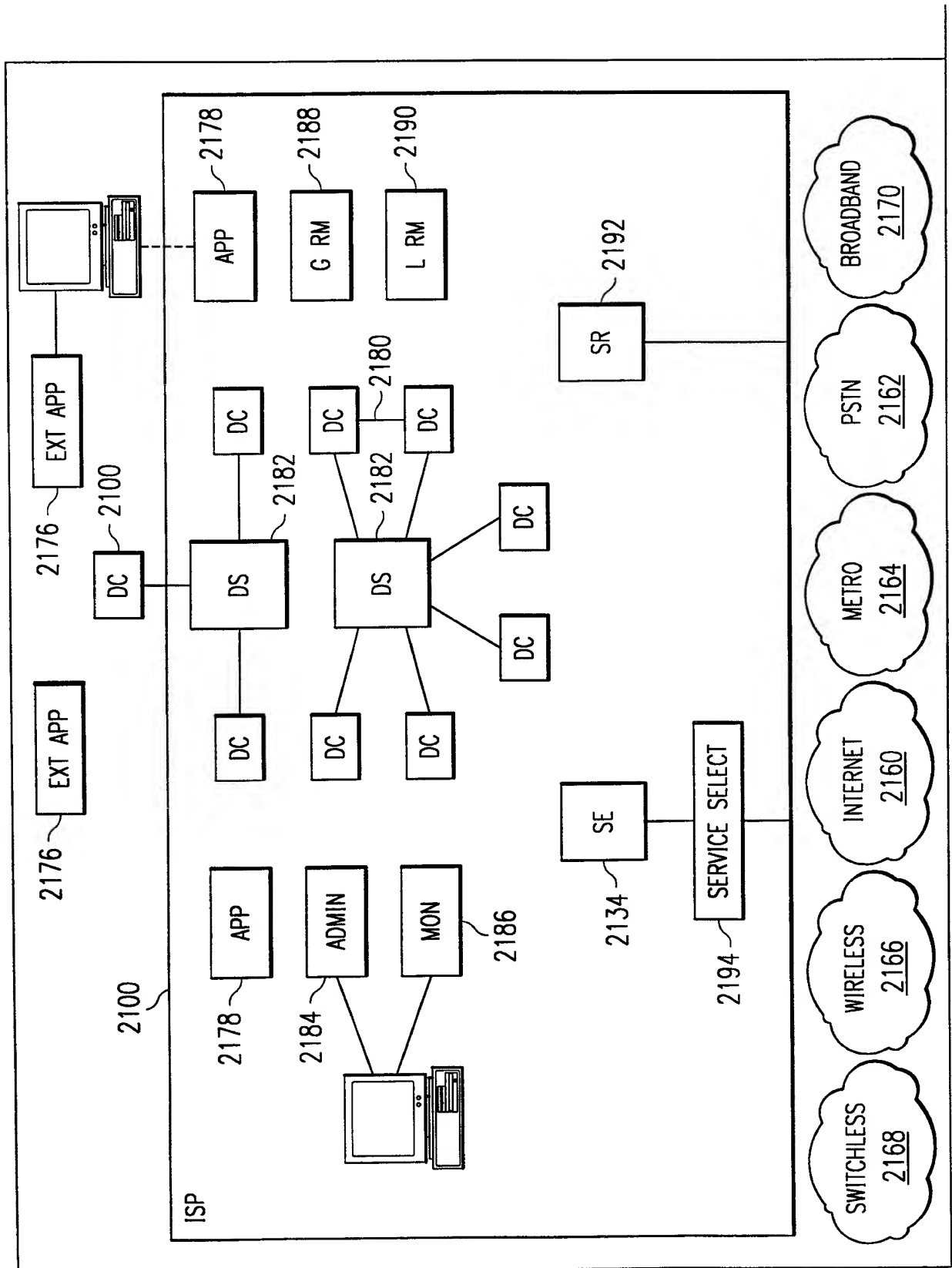


FIG. 22

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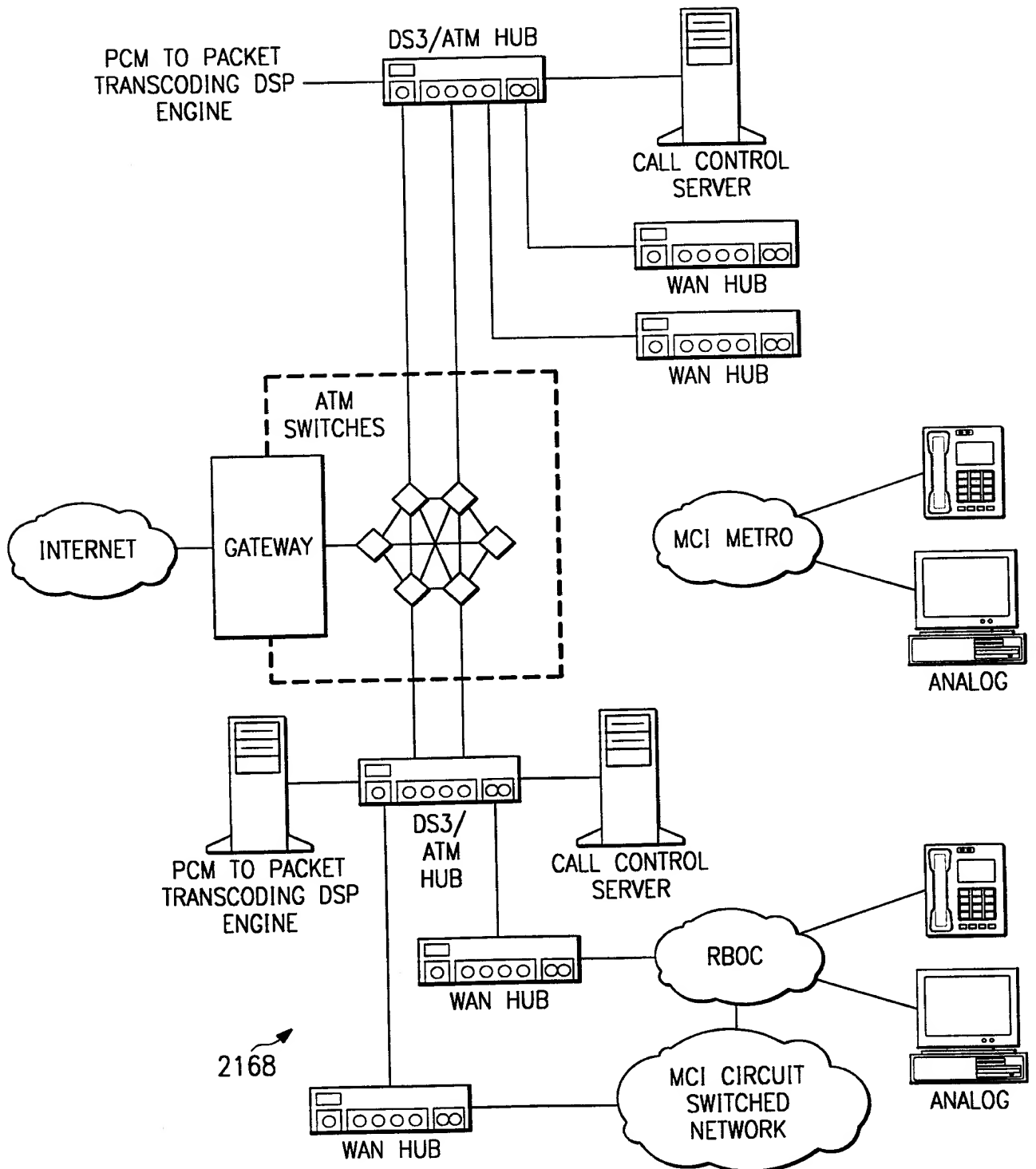


FIG. 23

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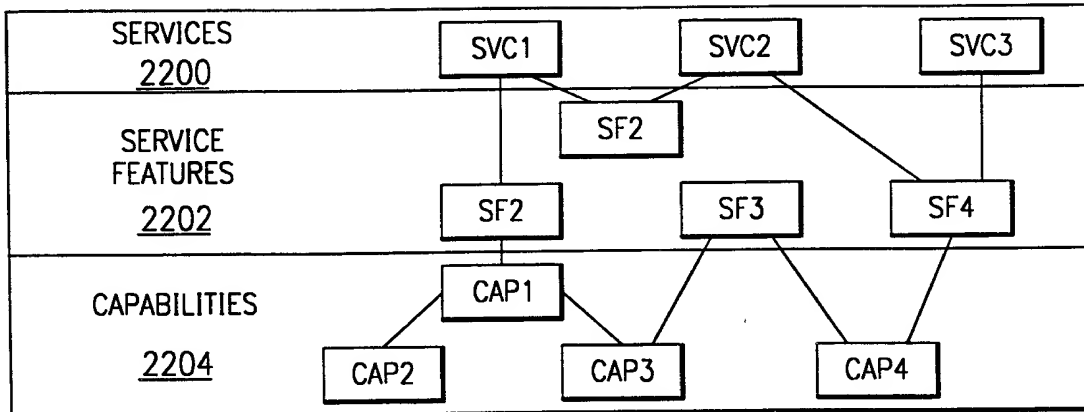


FIG. 24

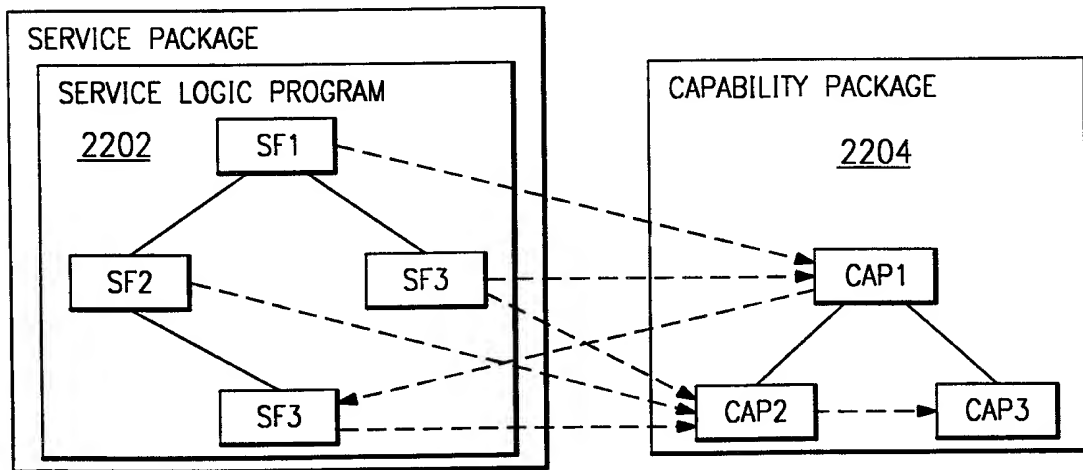


FIG. 25

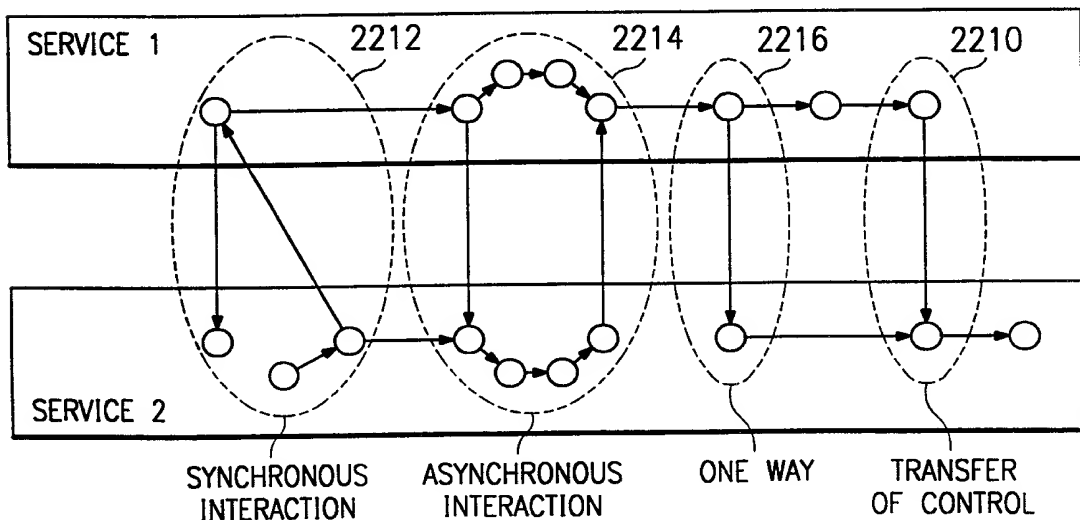


FIG. 26

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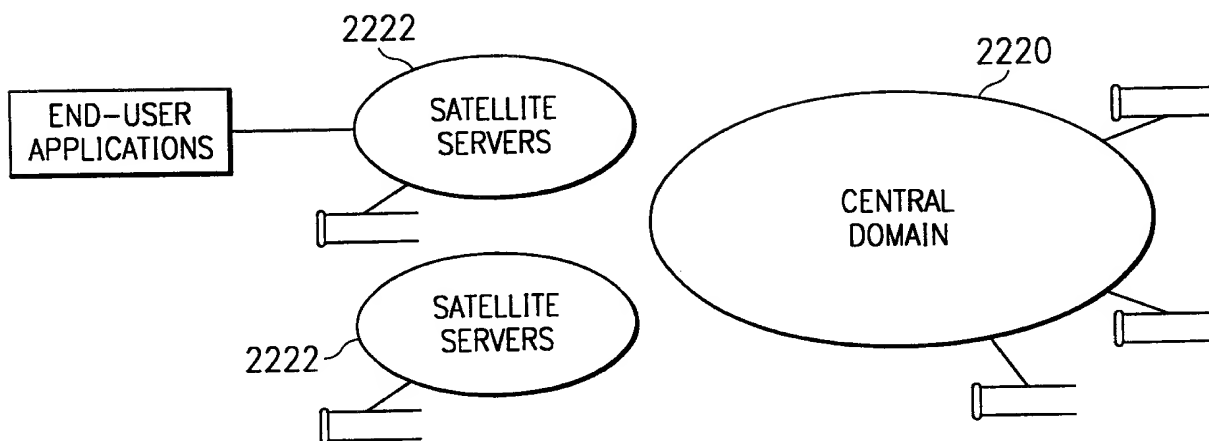


FIG. 27

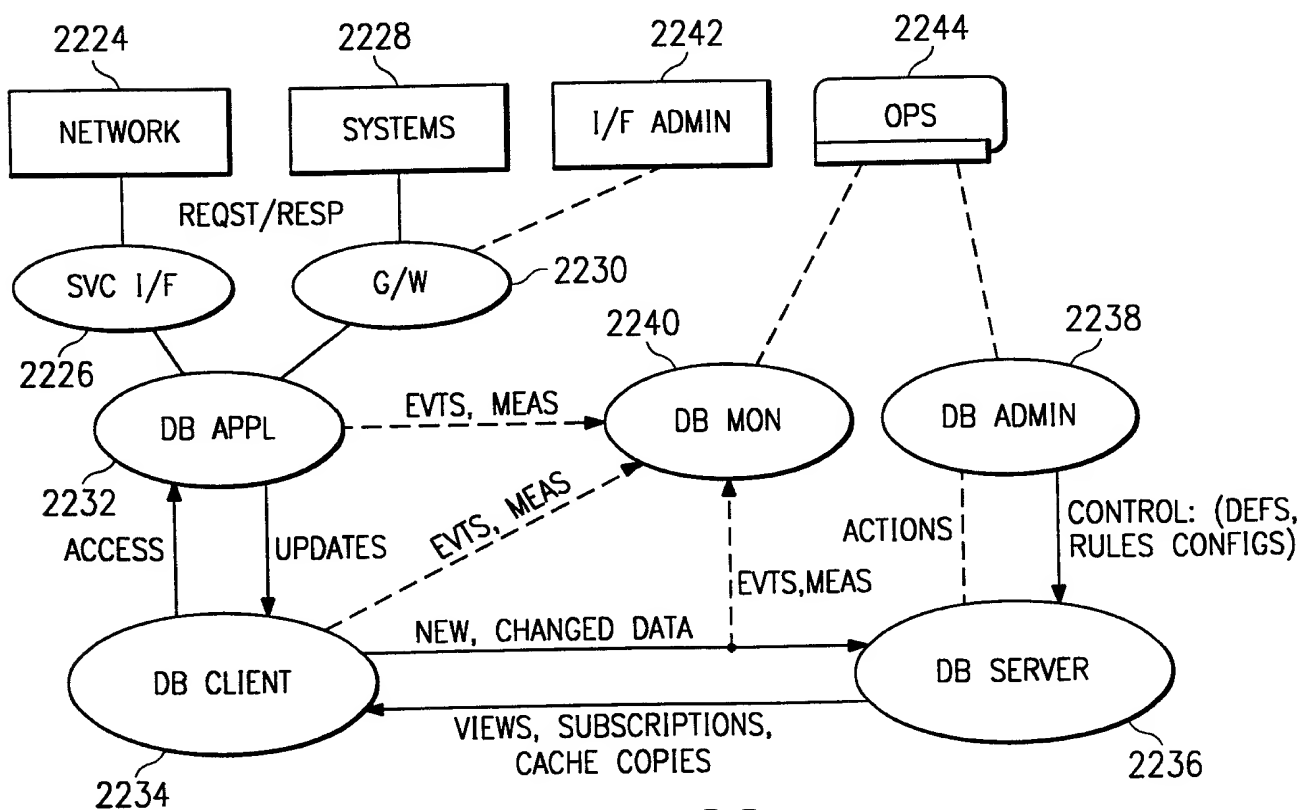


FIG. 28

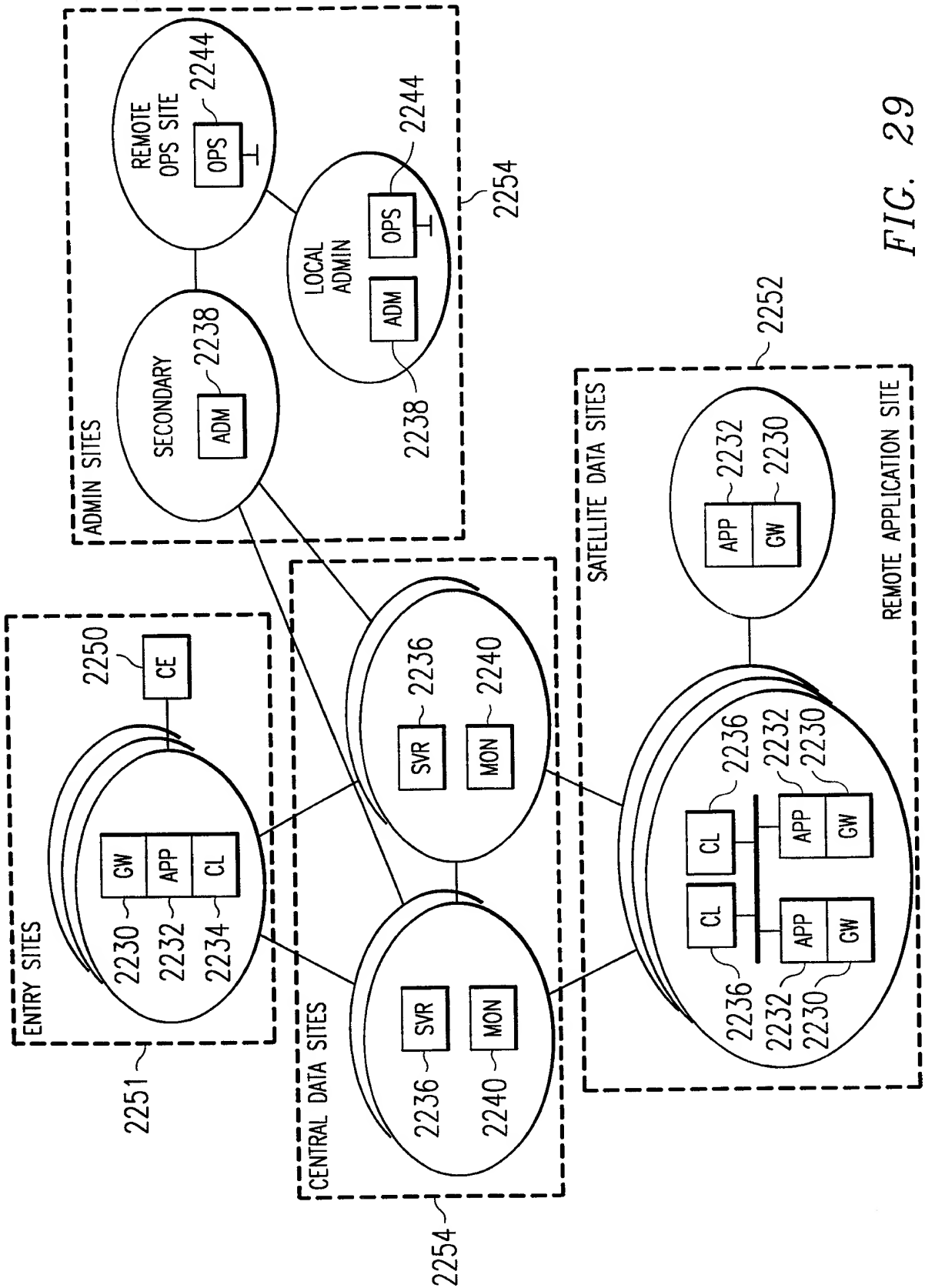
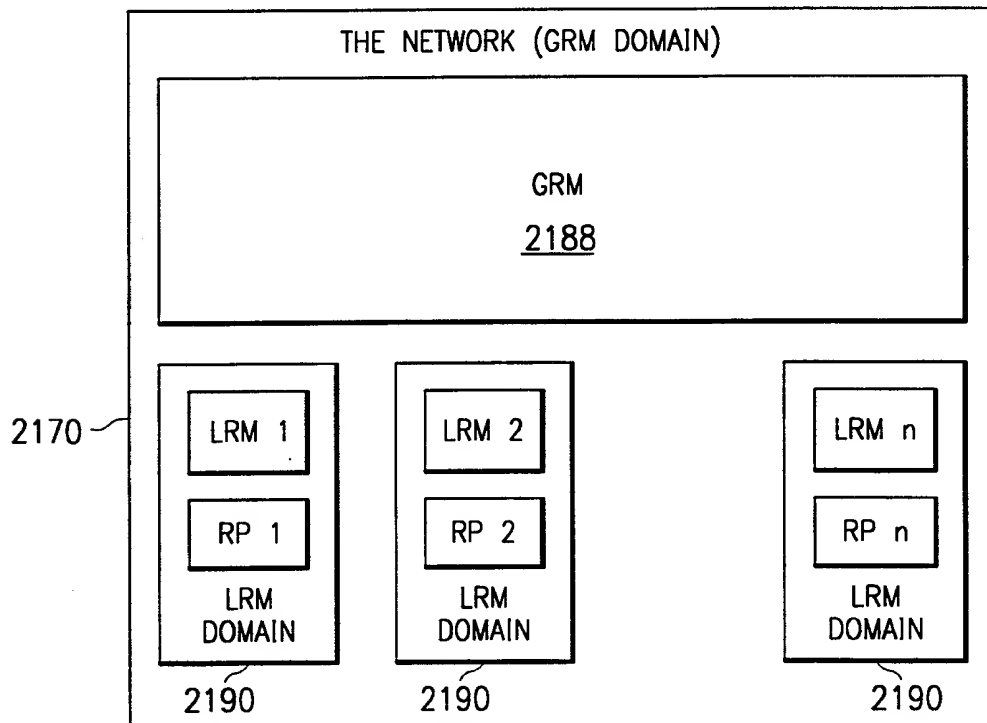
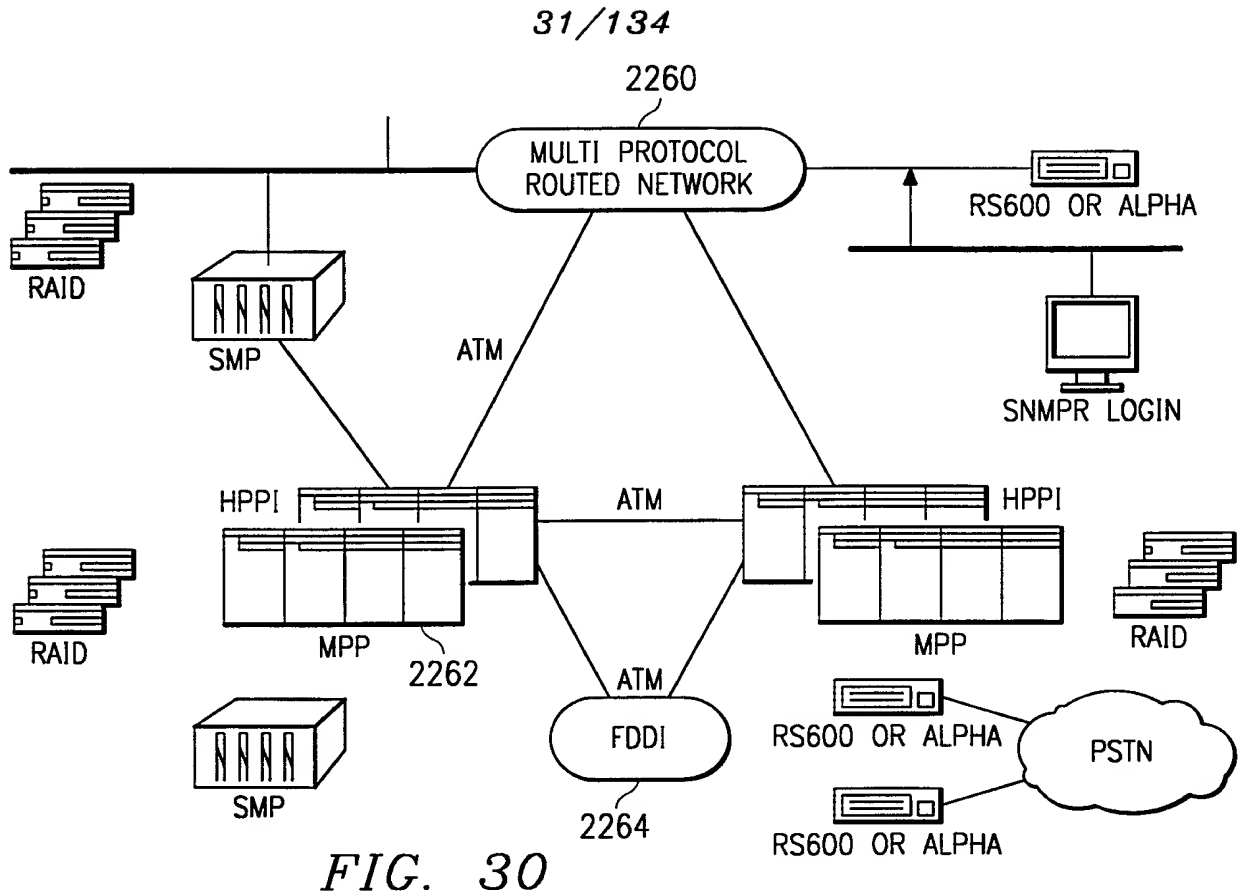


FIG. 29





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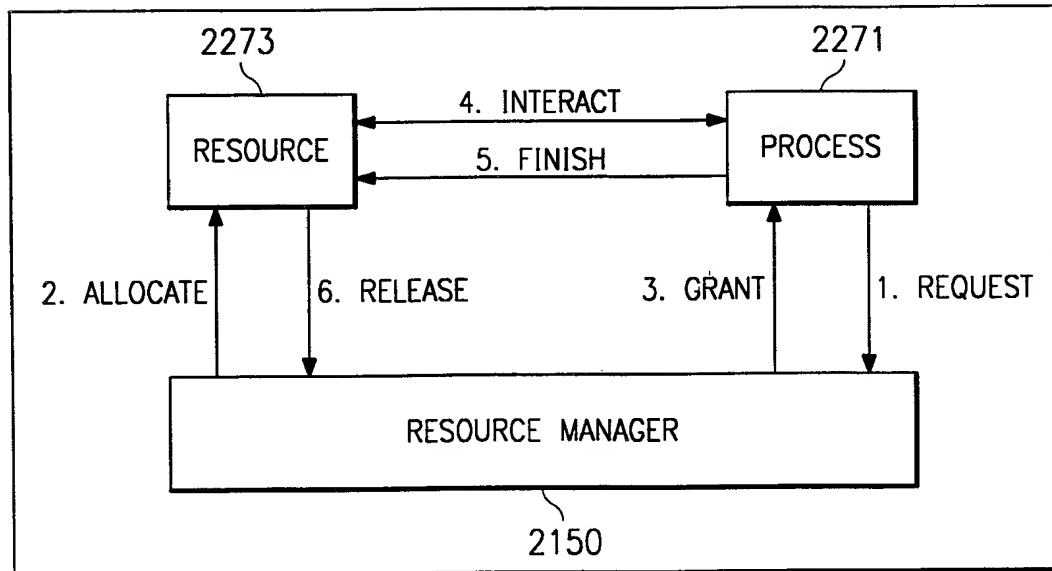


FIG. 32

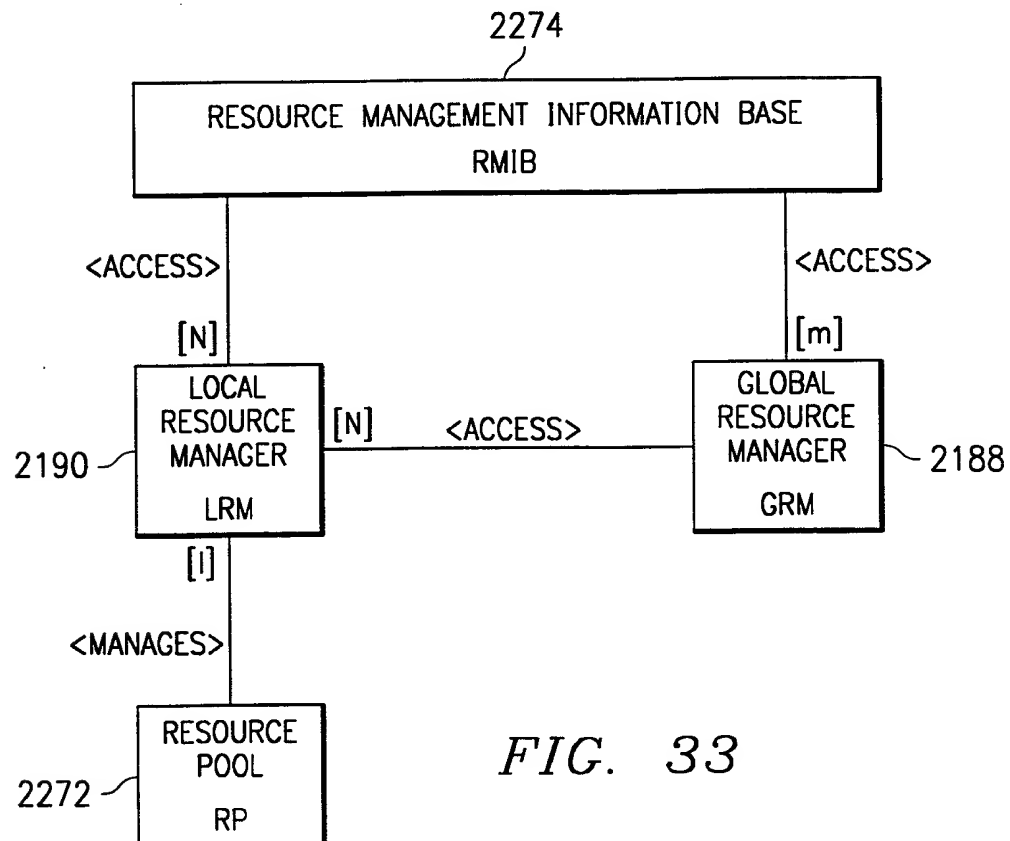


FIG. 33

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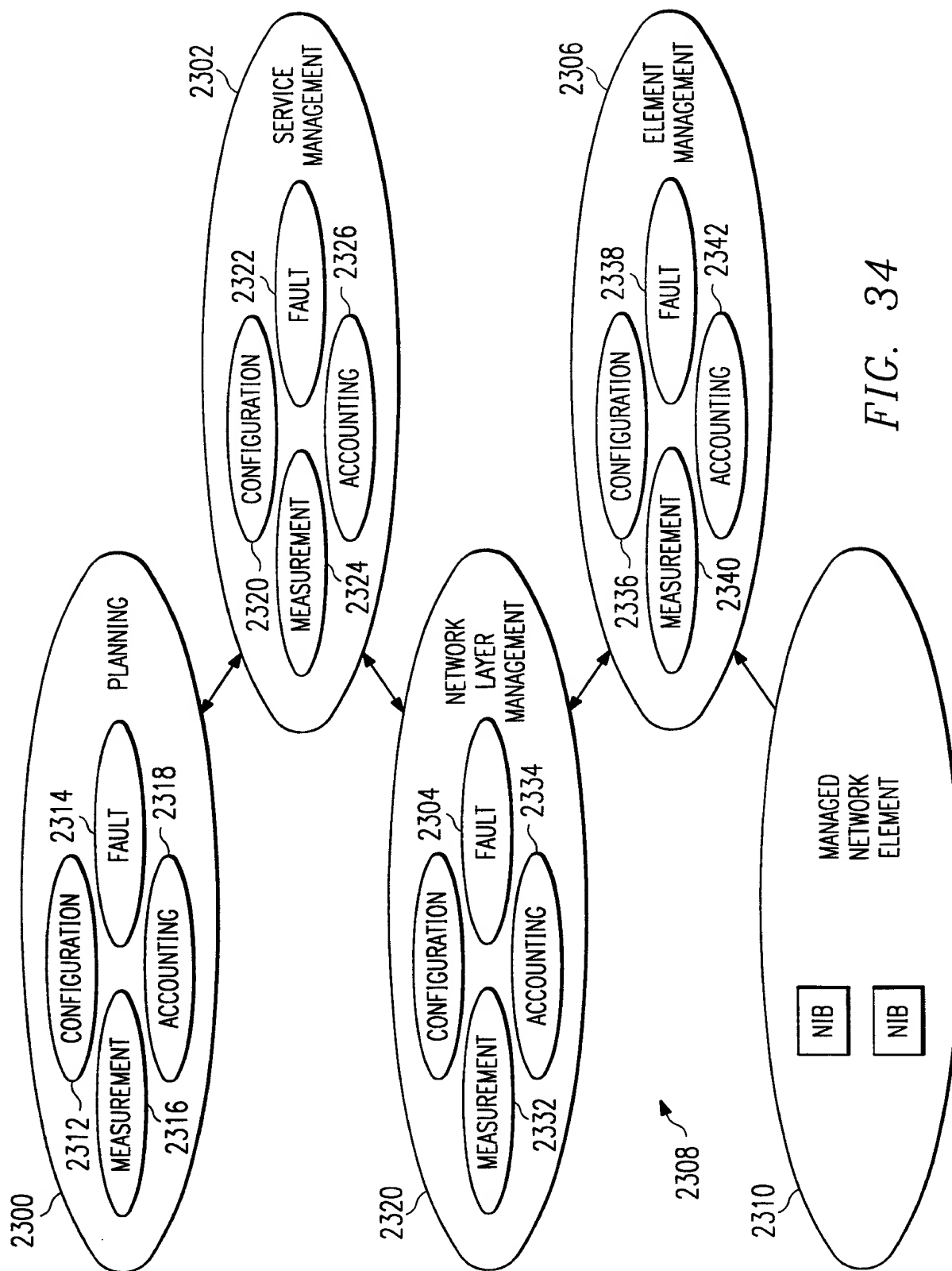


FIG. 34

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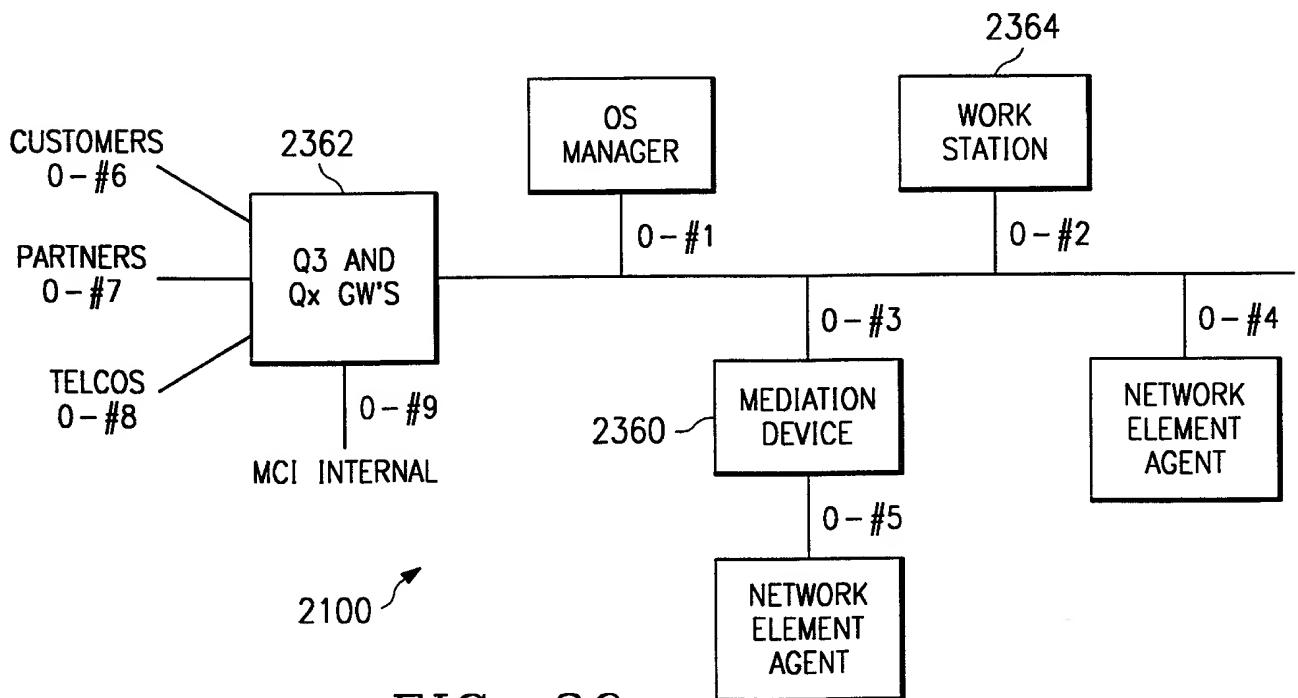
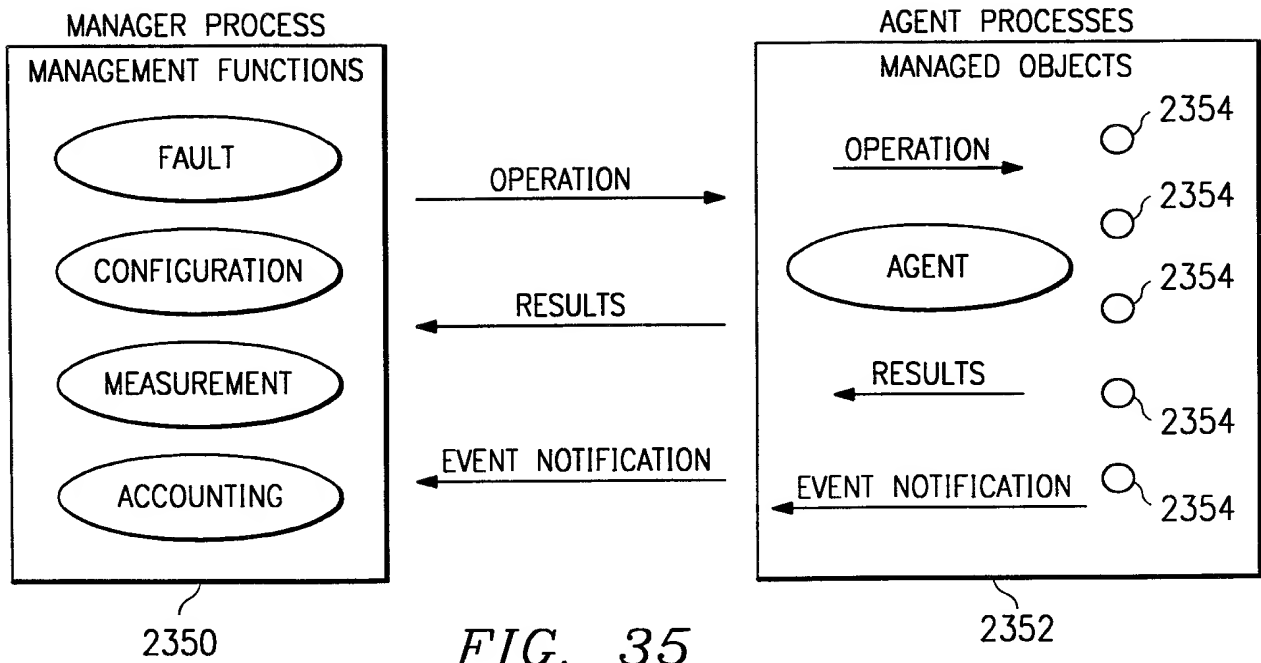


FIG. 36

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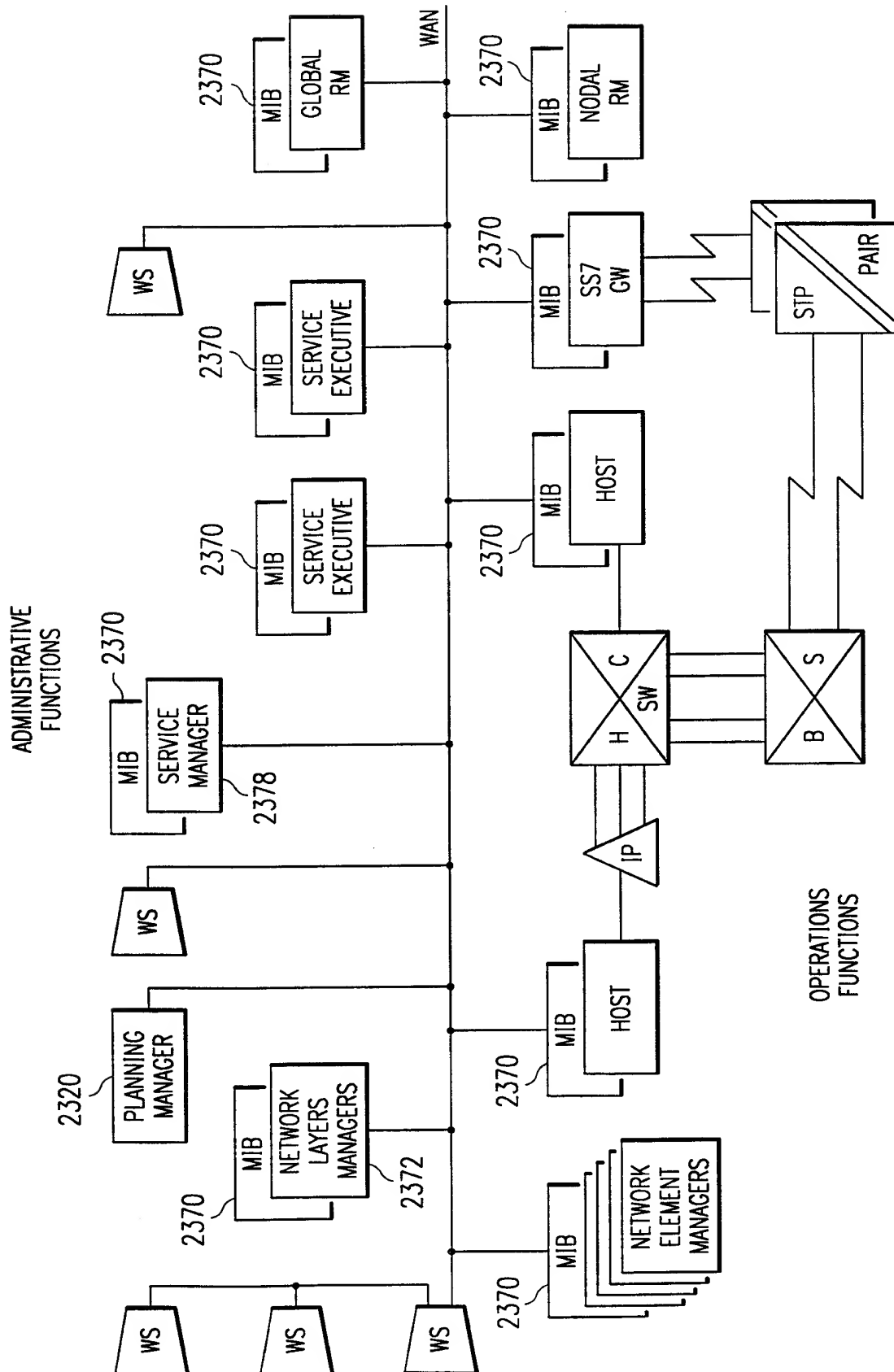


FIG. 37

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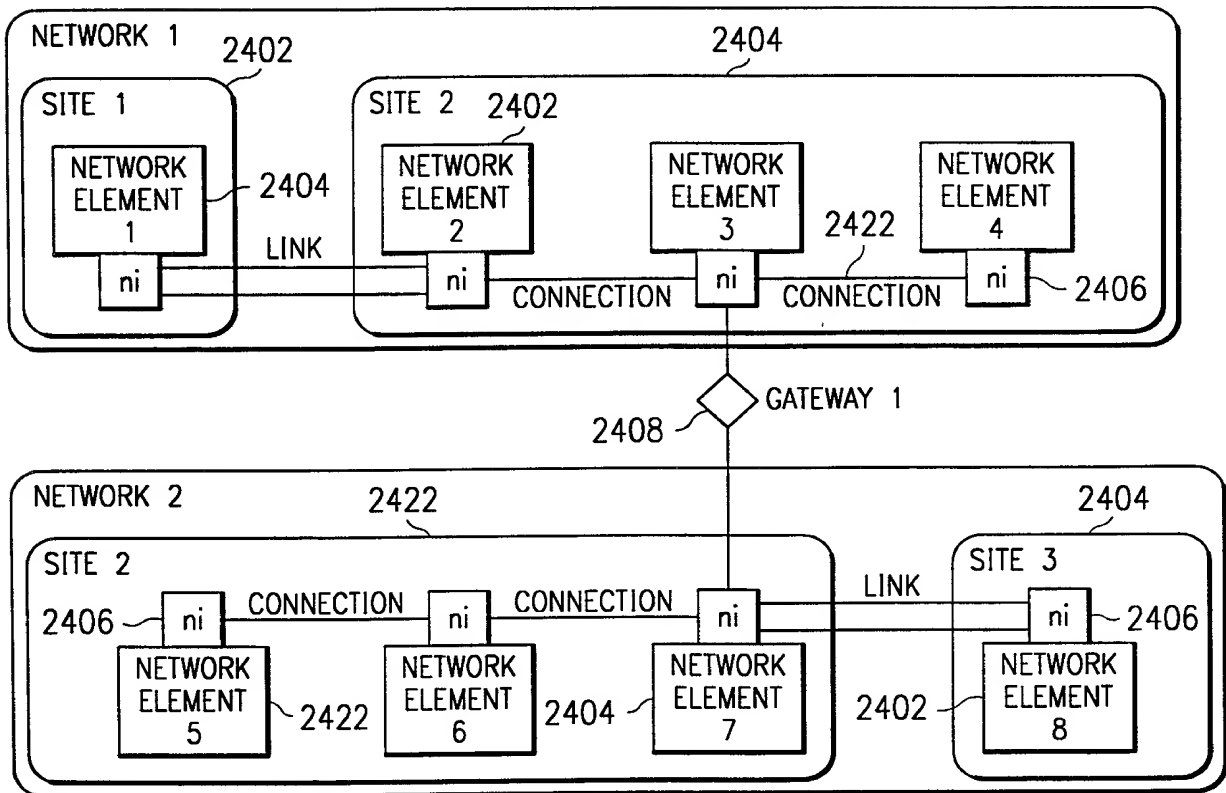


FIG. 38

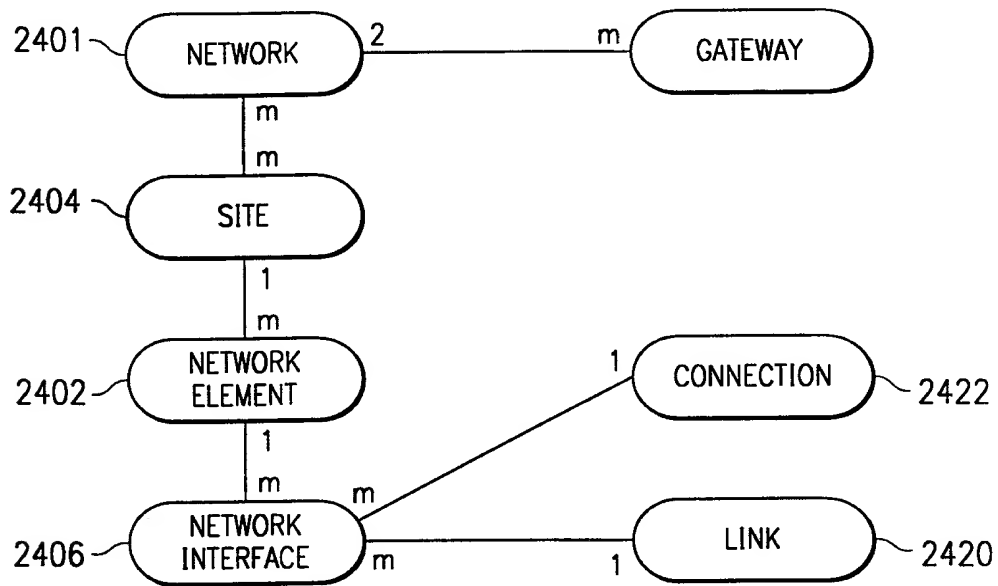


FIG. 39

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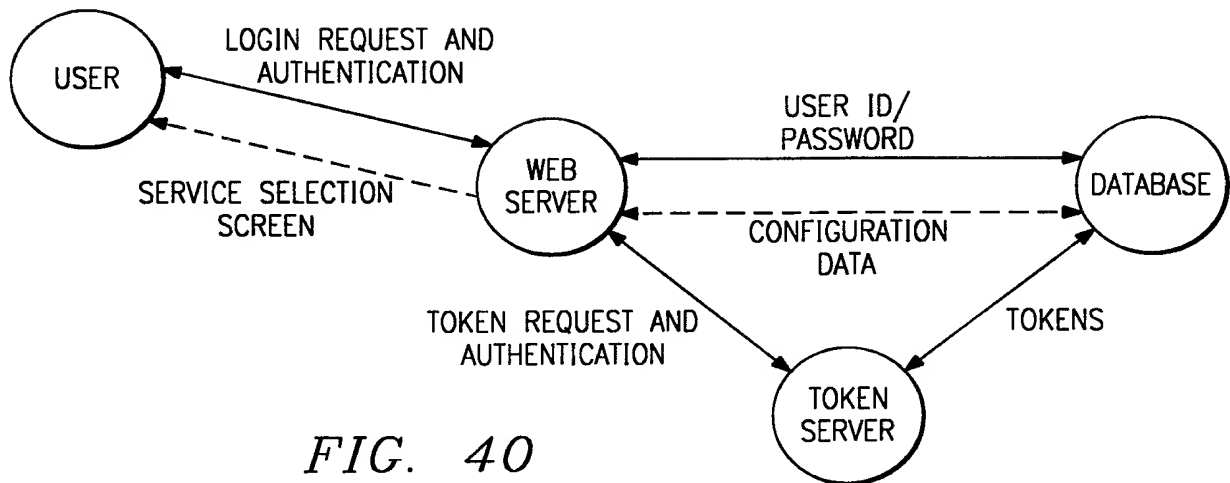


FIG. 40

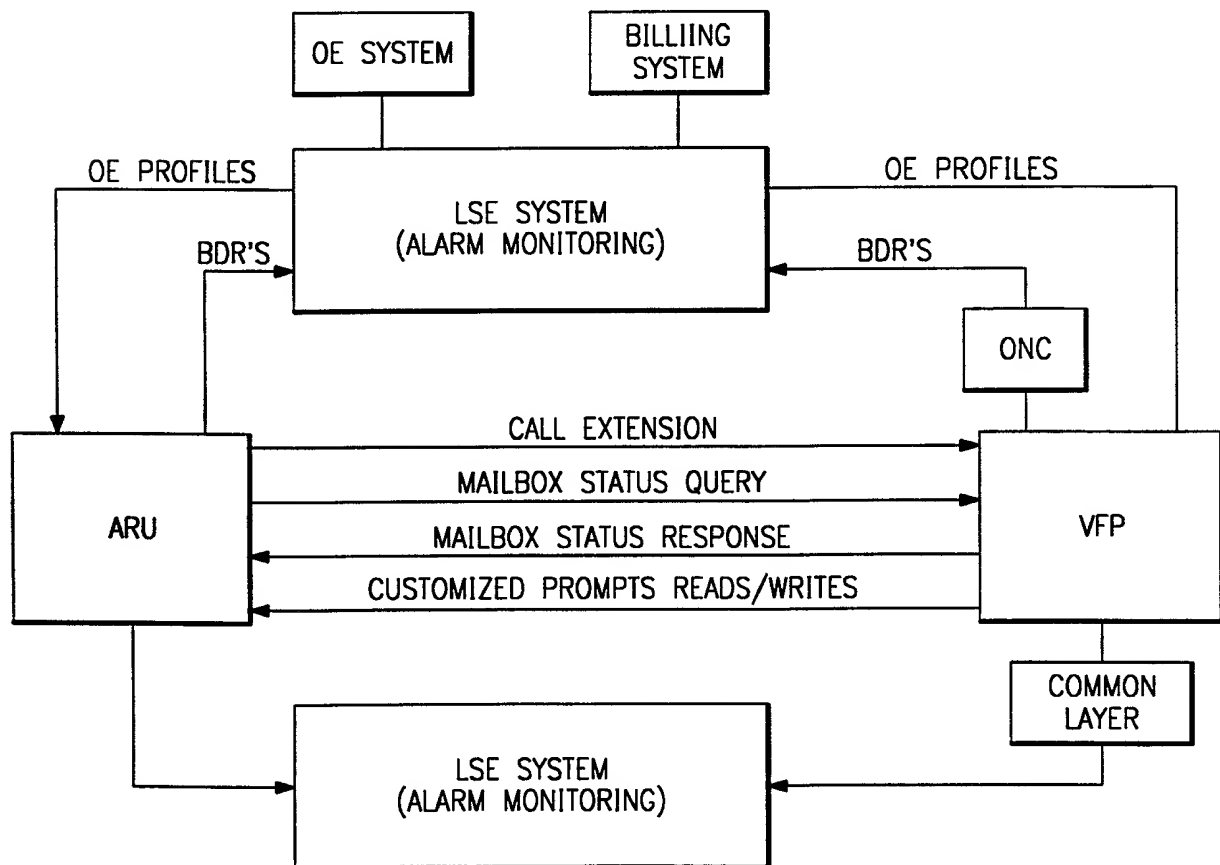
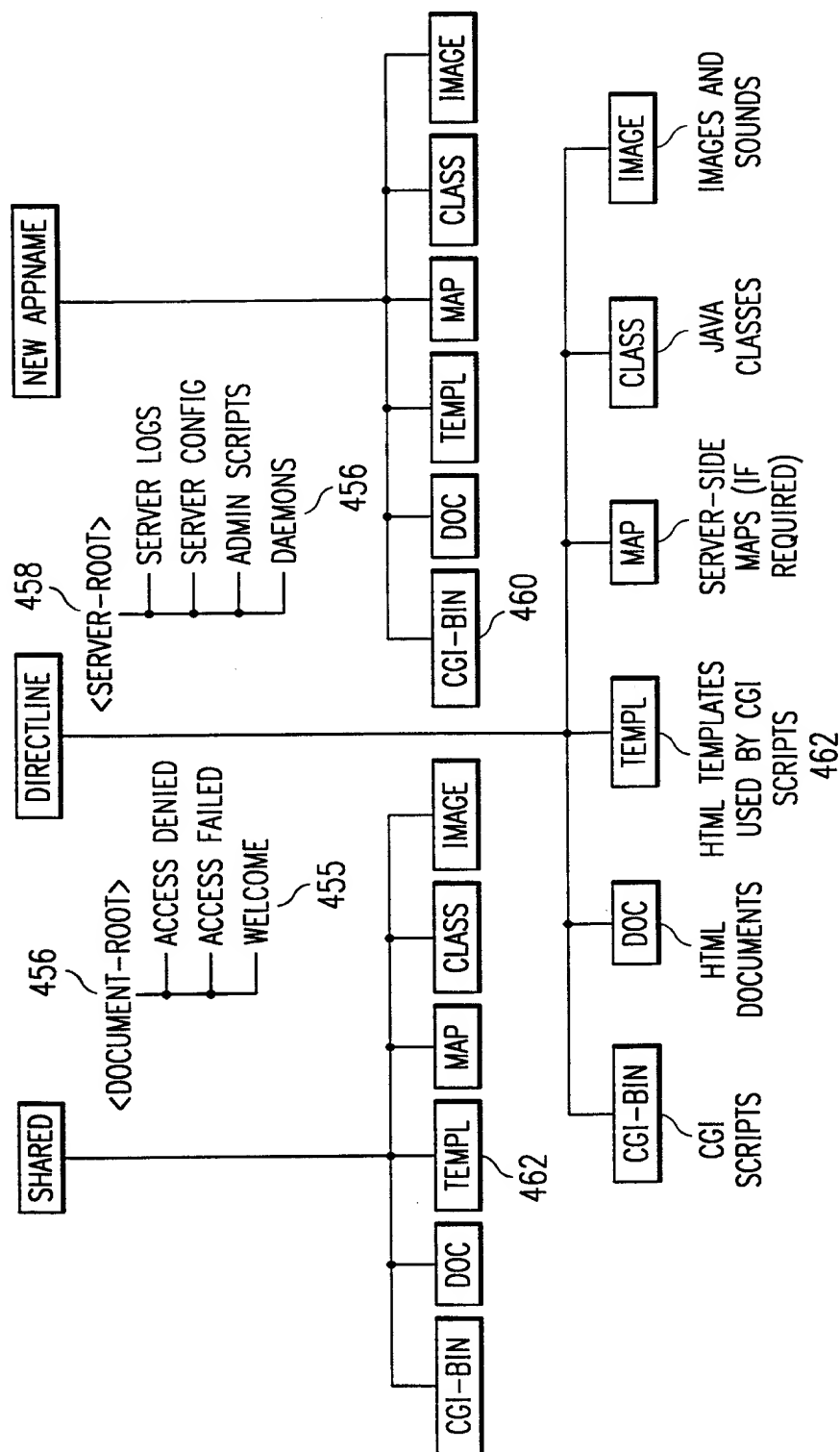


FIG. 43

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FIG. 41





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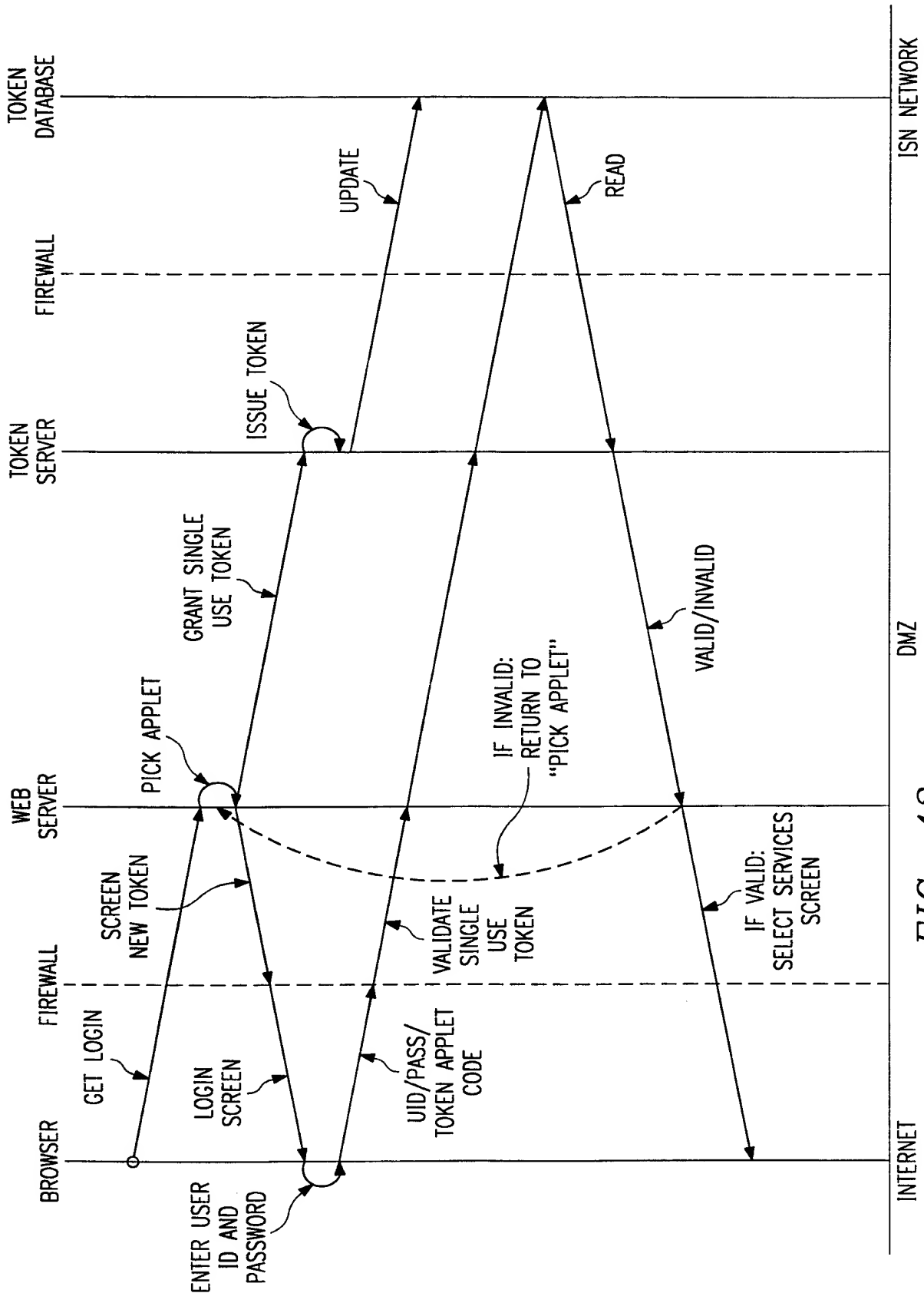
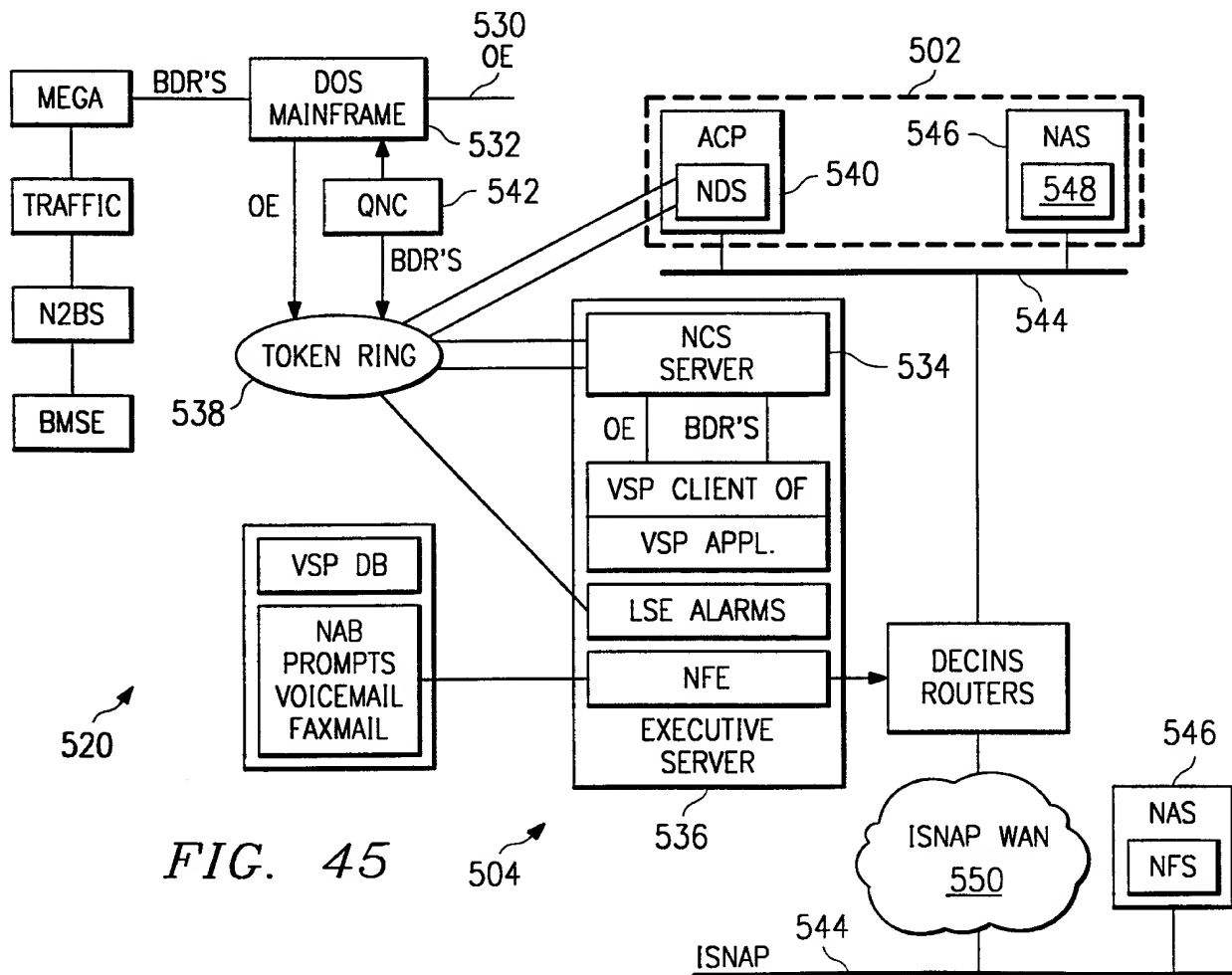
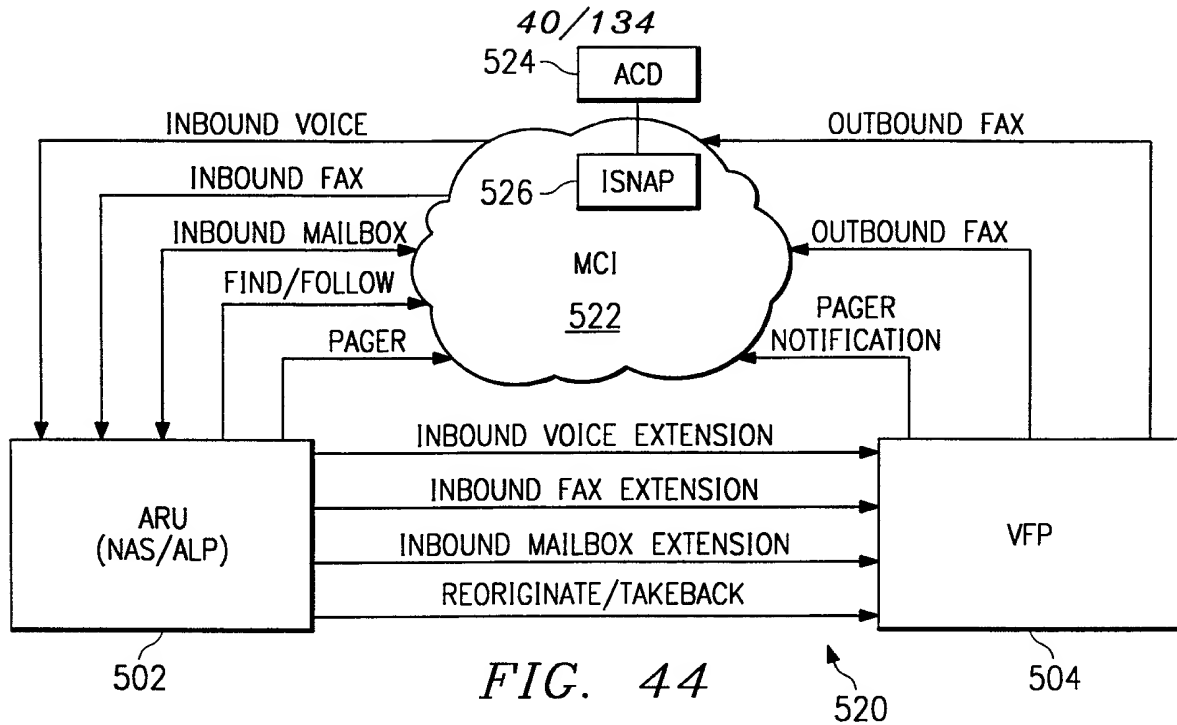
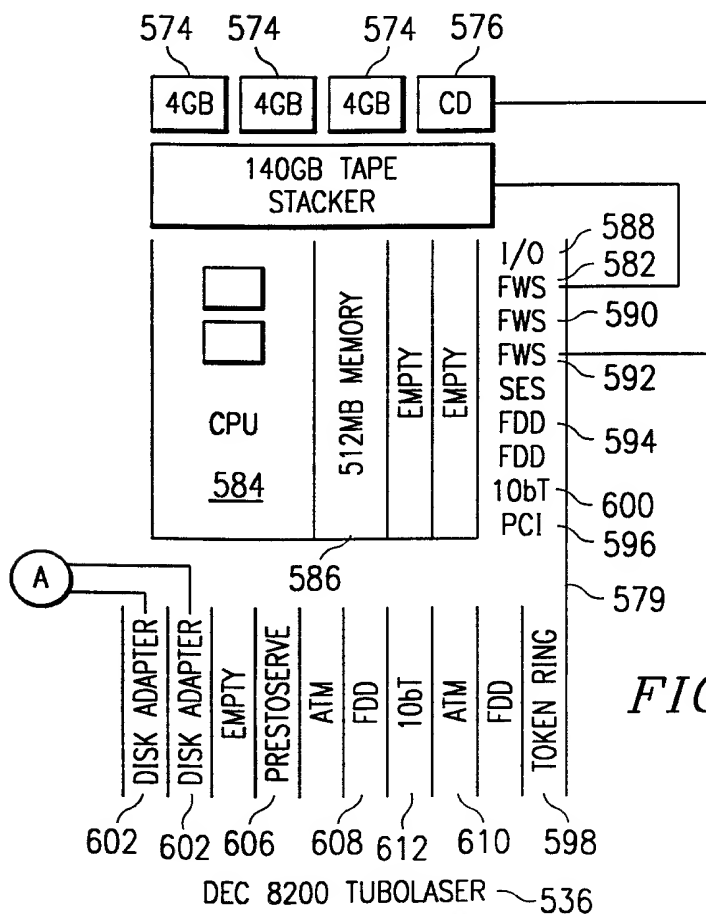
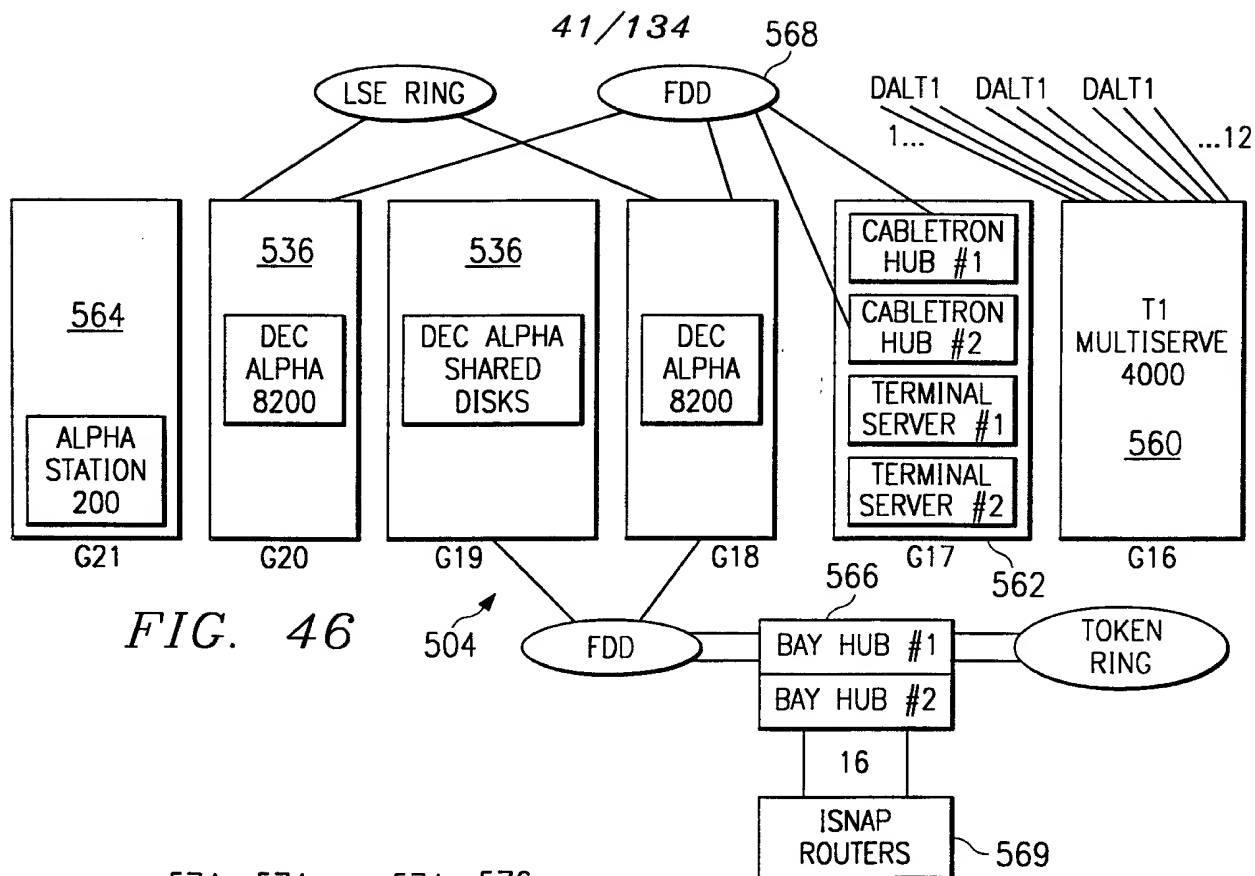
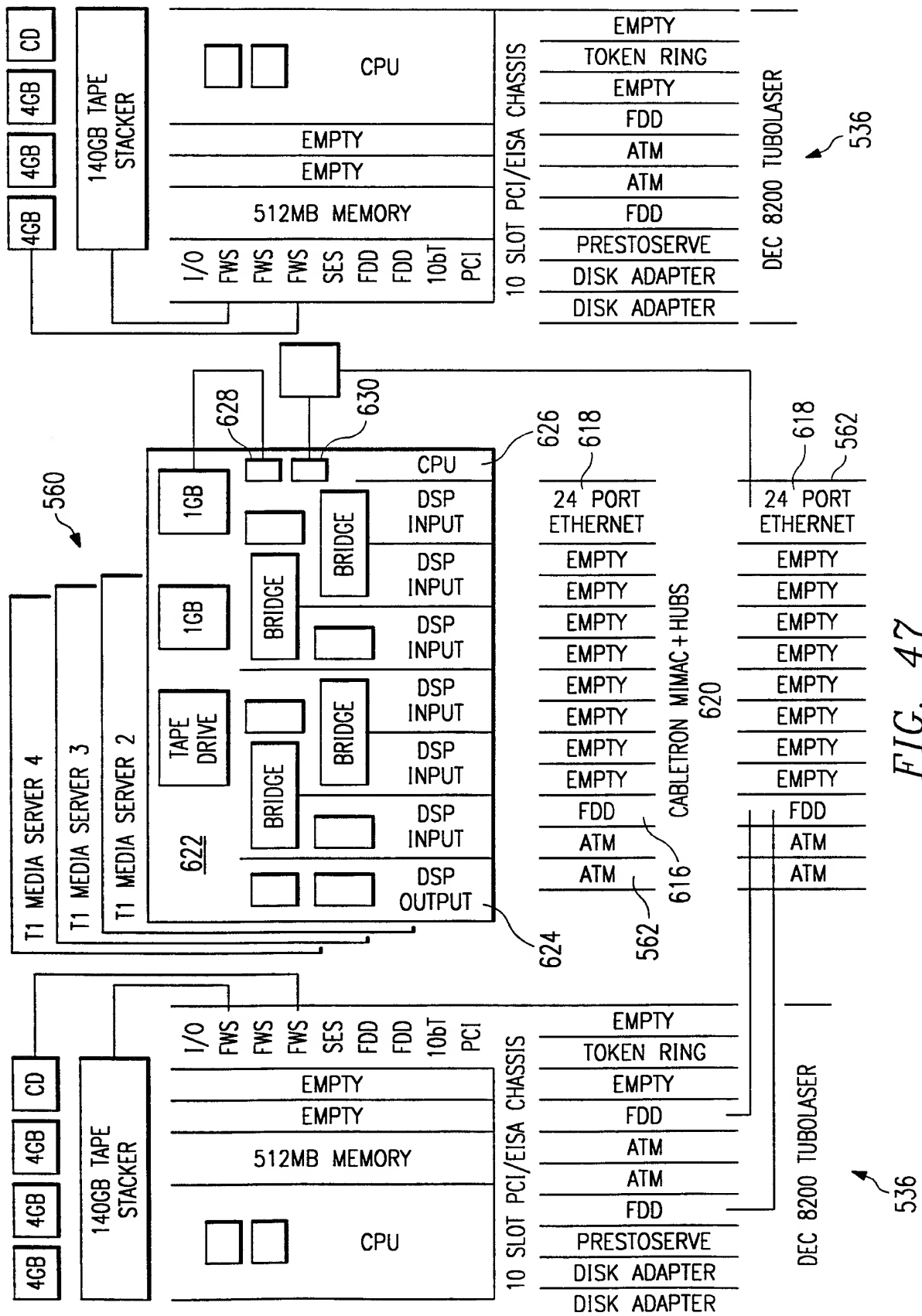


FIG. 42





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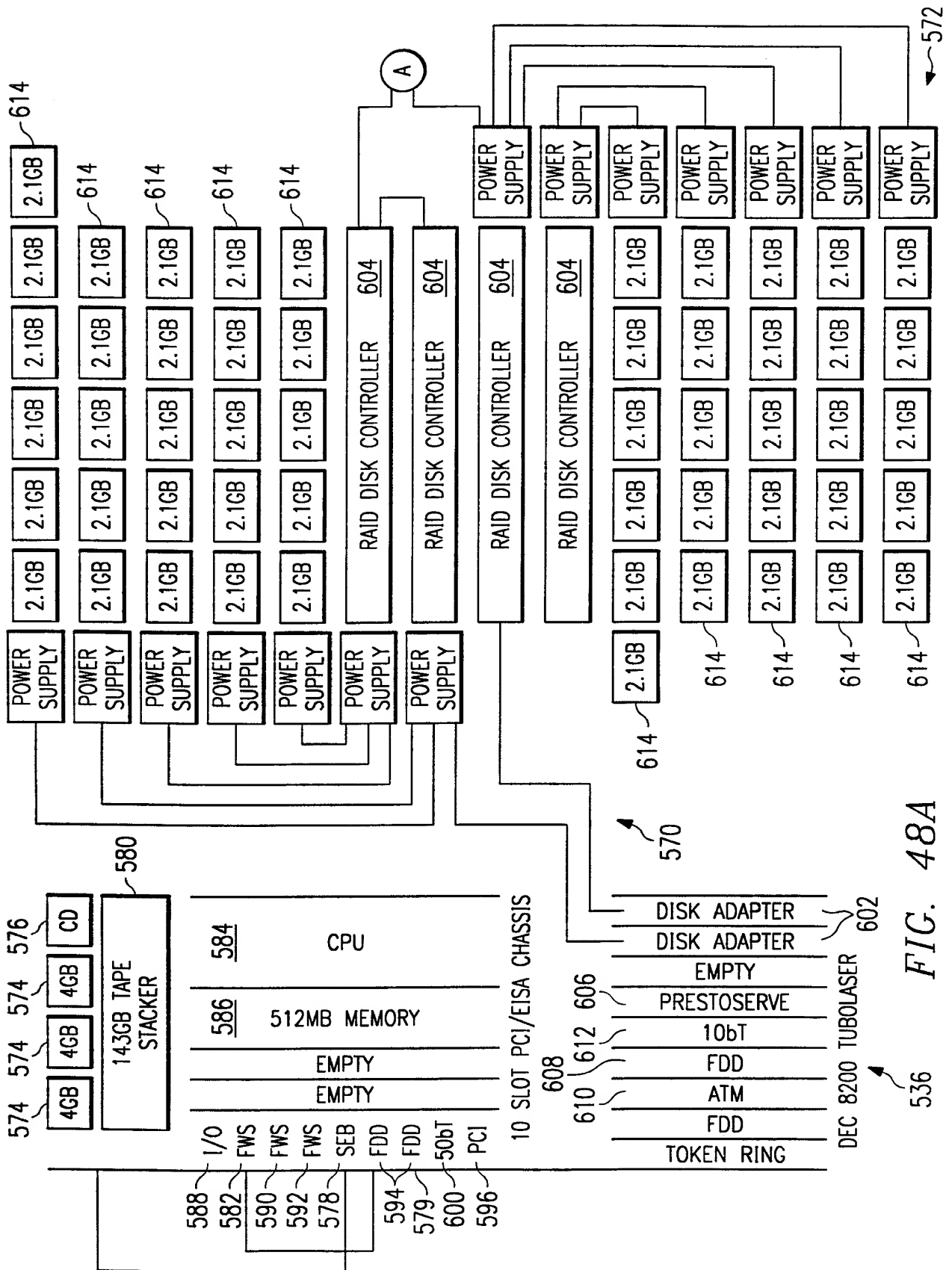


FIG. 48A

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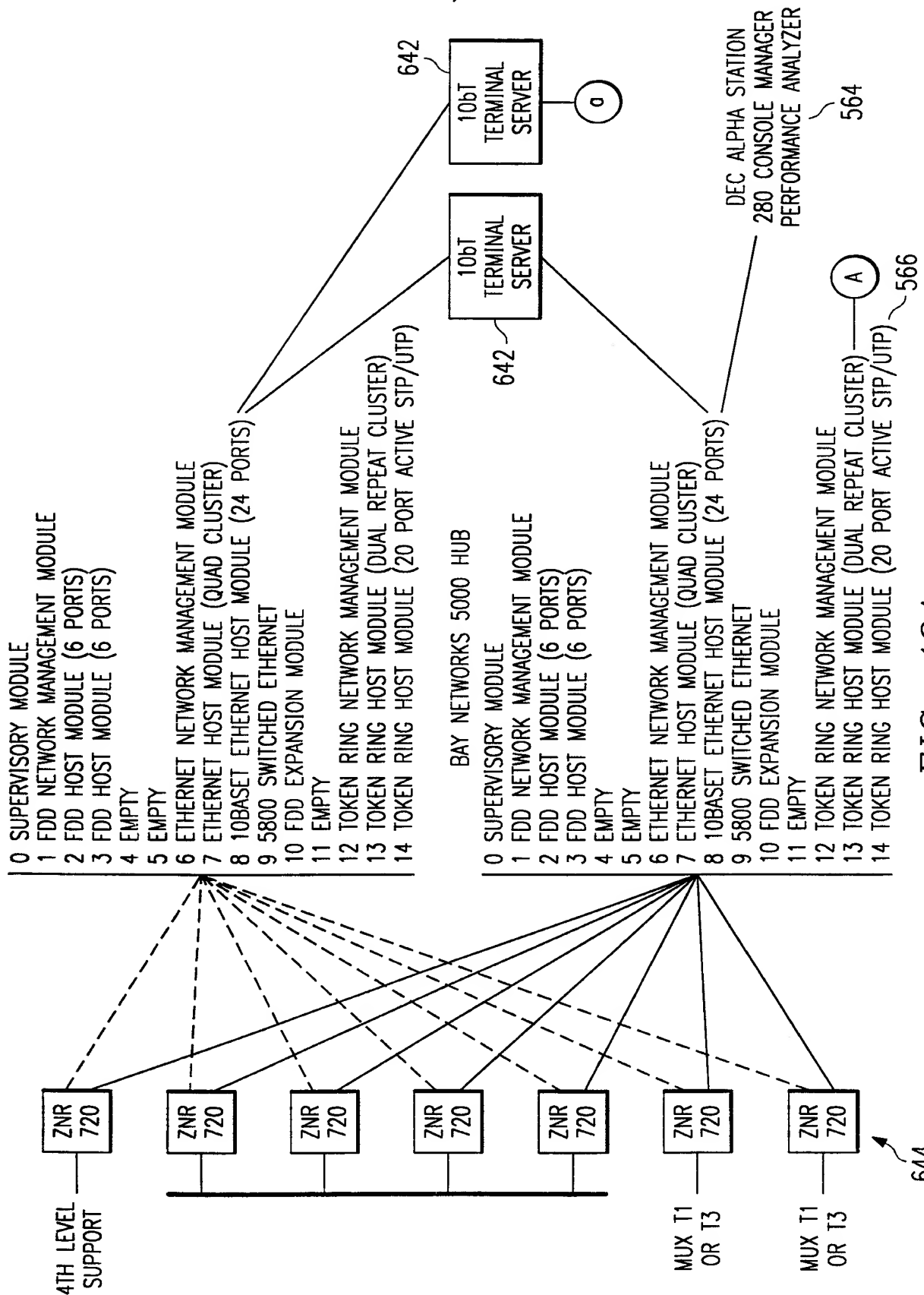


FIG. 49A

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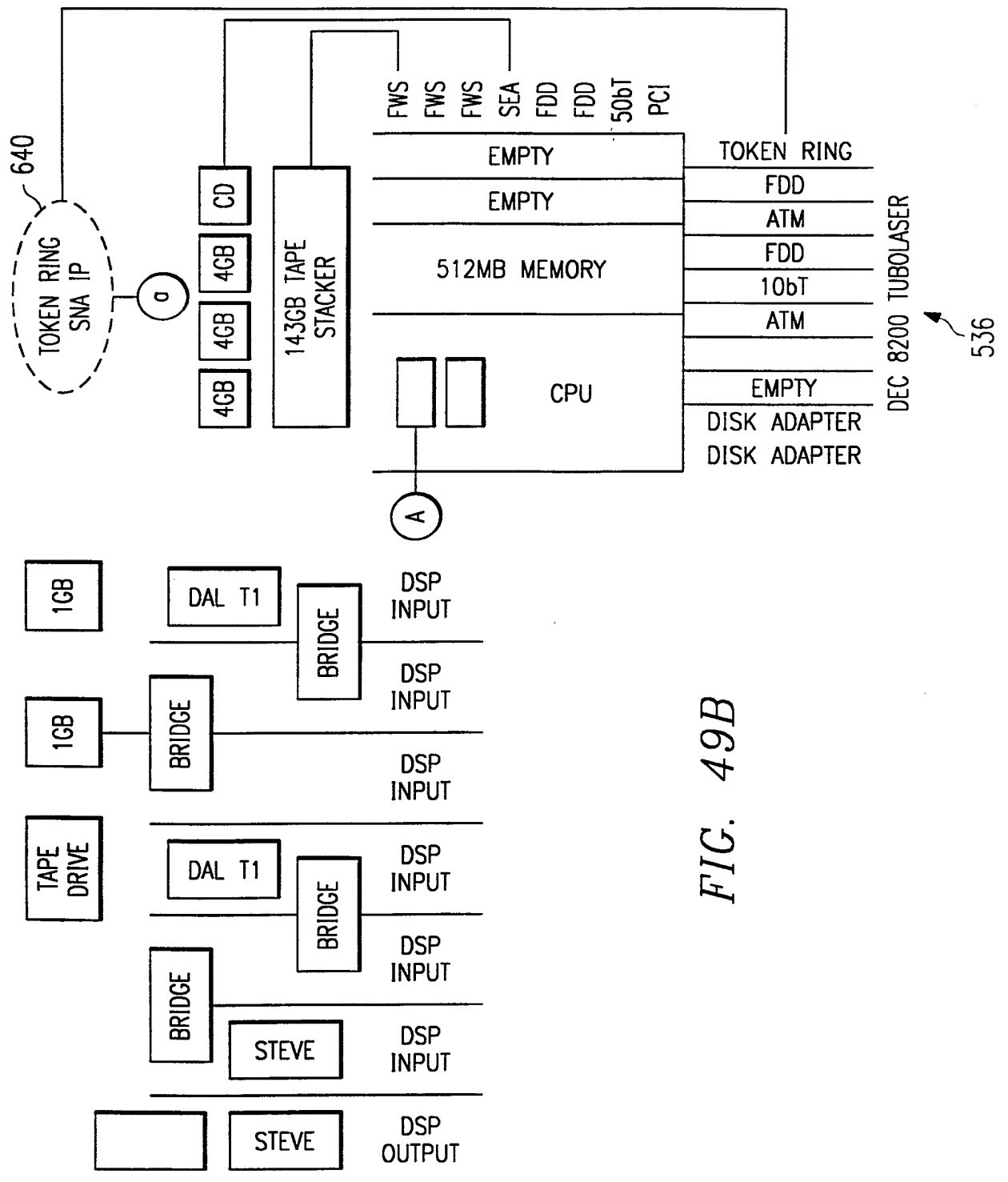
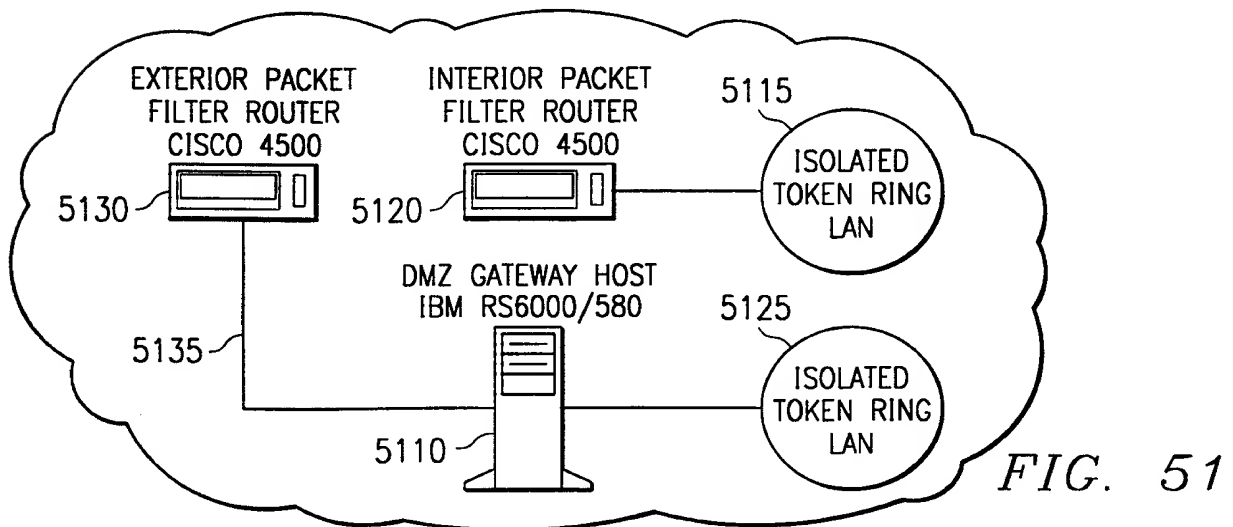
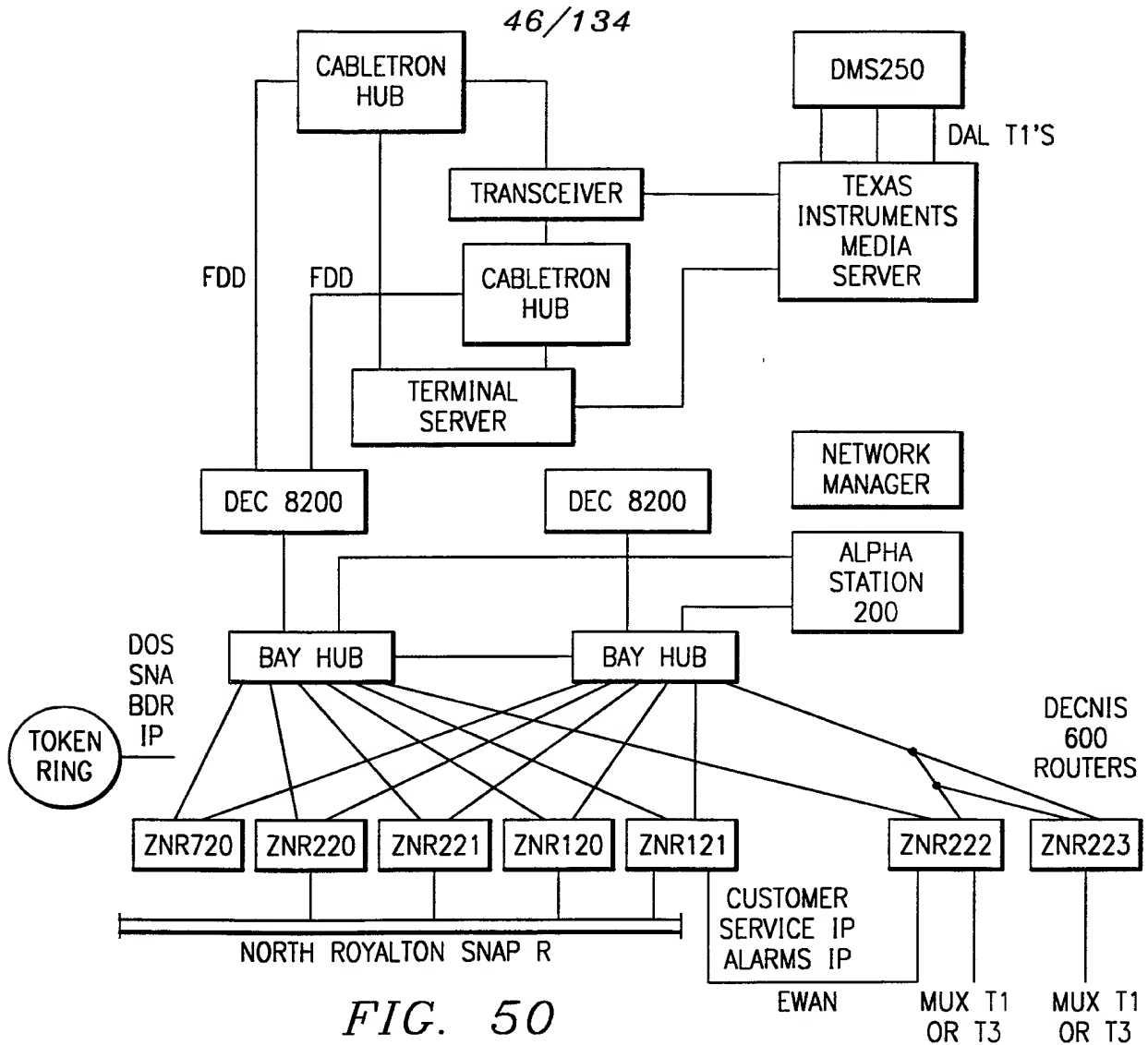


FIG. 49B





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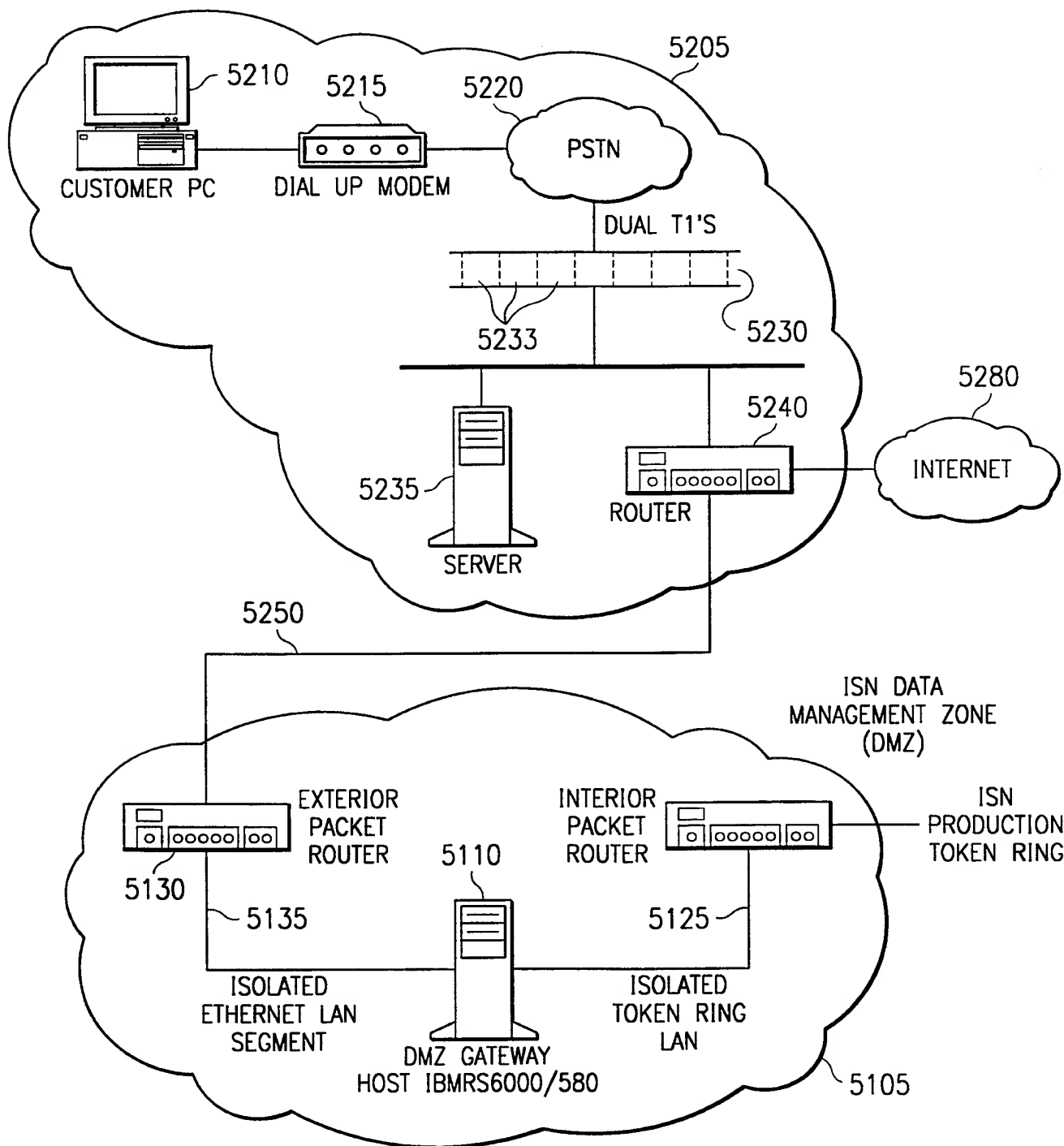
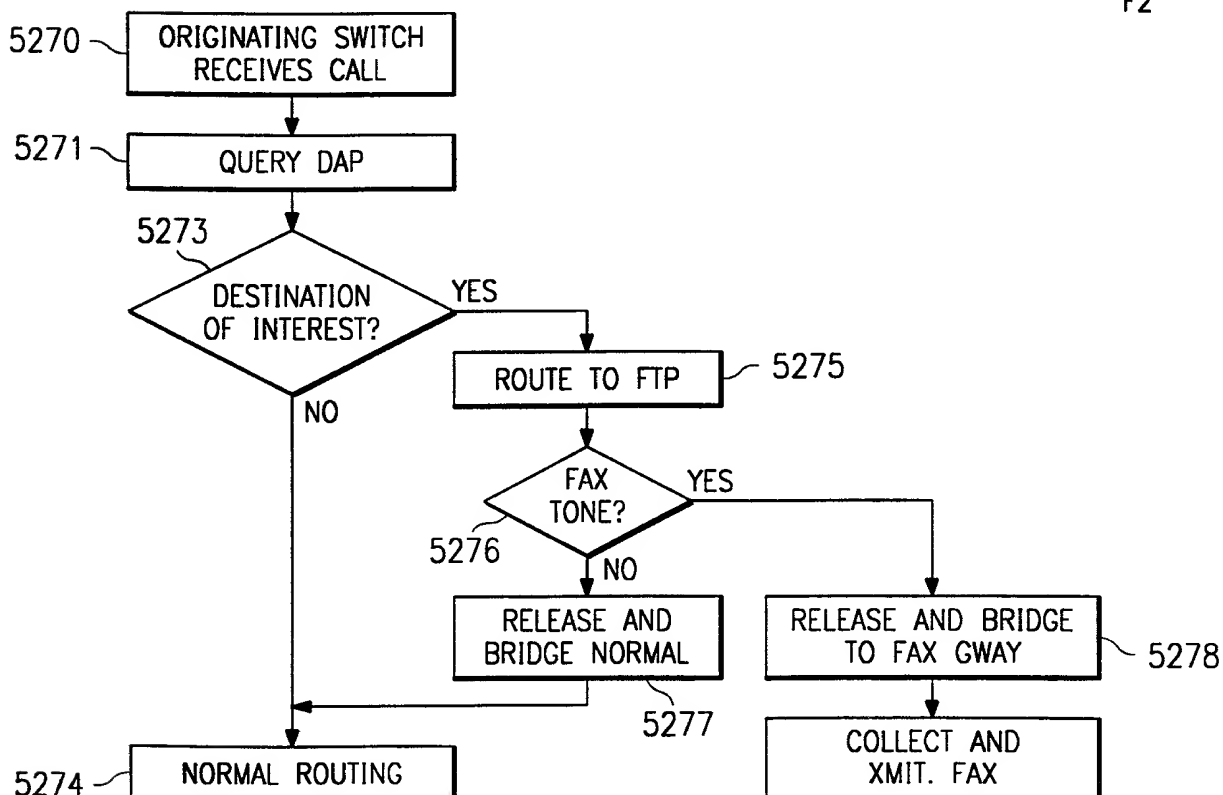
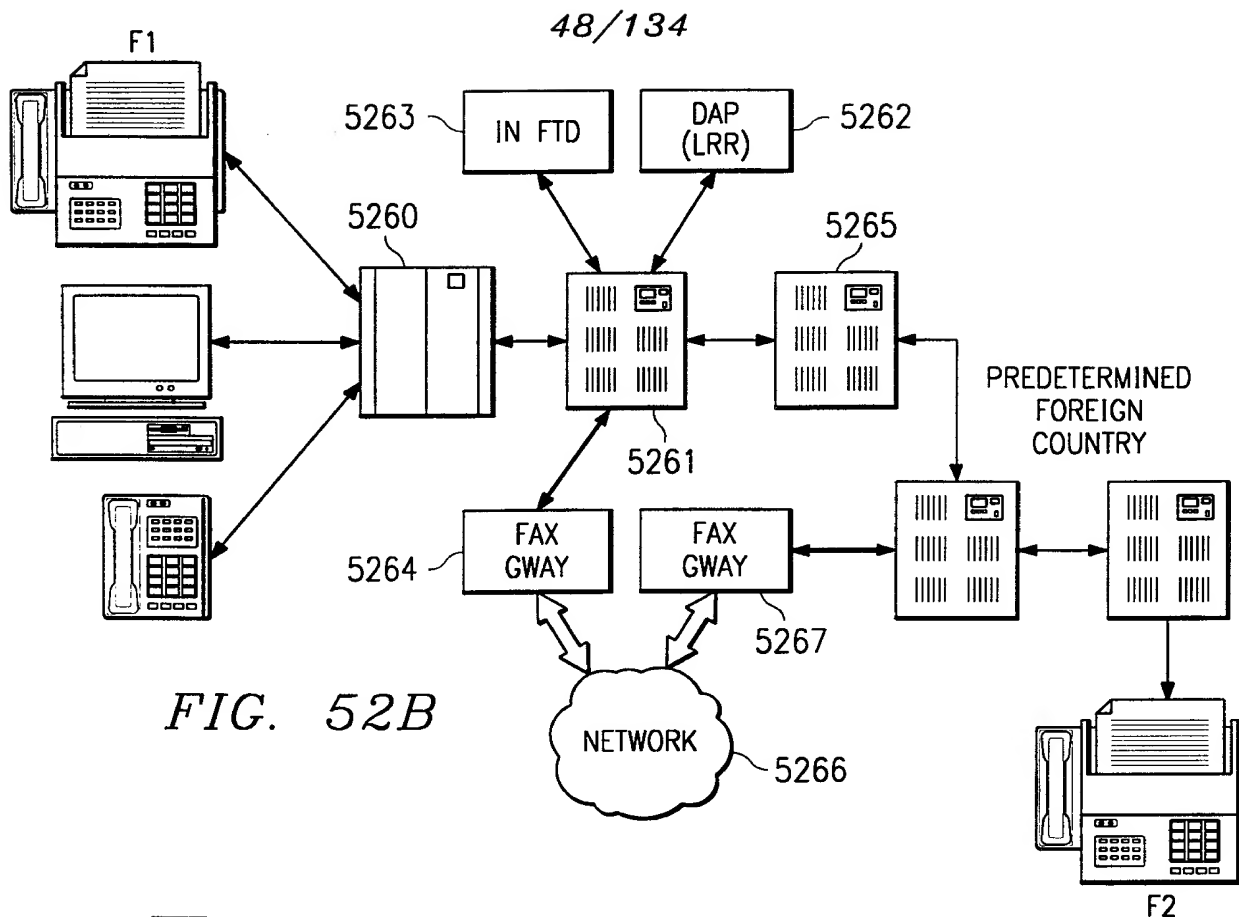


FIG. 52A



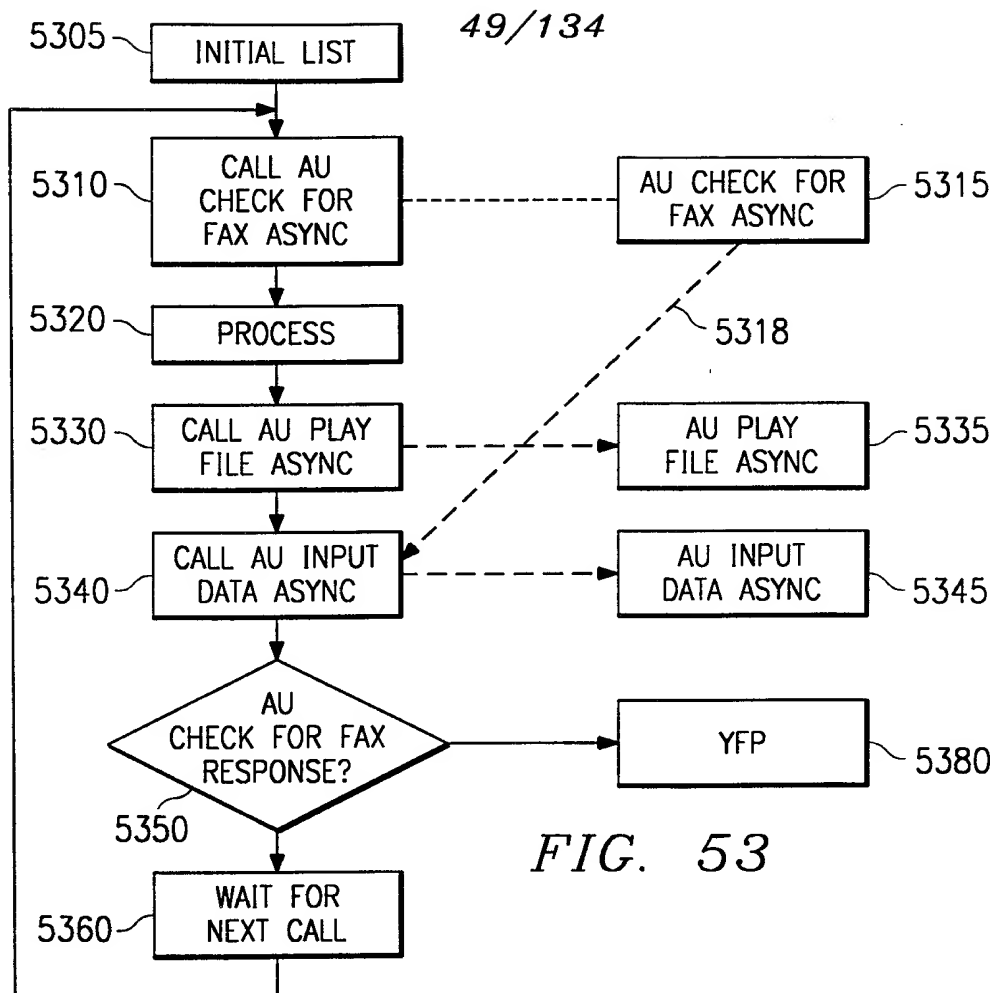


FIG. 53

## directlineMCI Profile Management

Welcome to directlineMCI on-line Profile Management.  
Please enter your directlineMCI Number and Passcode below.

directlineMCI Number:

702

Passcode:

704

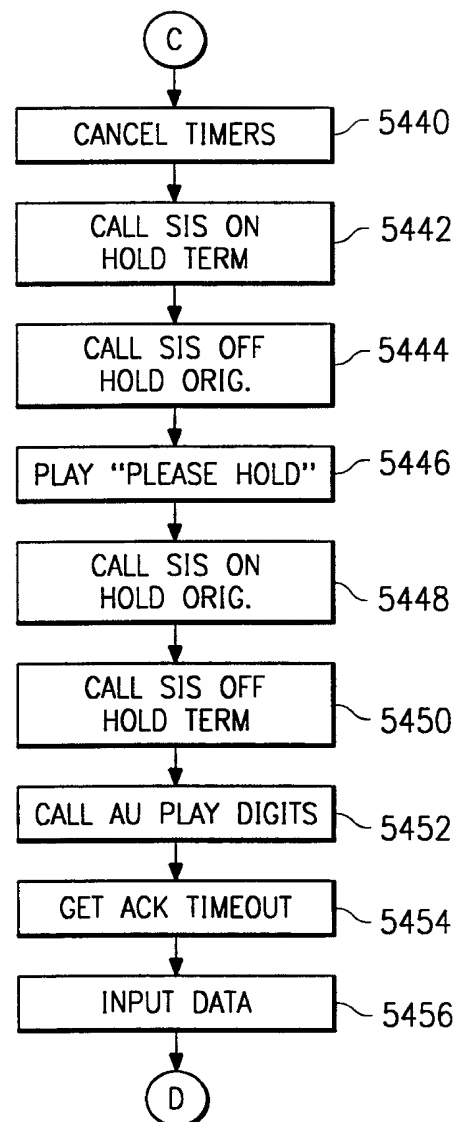
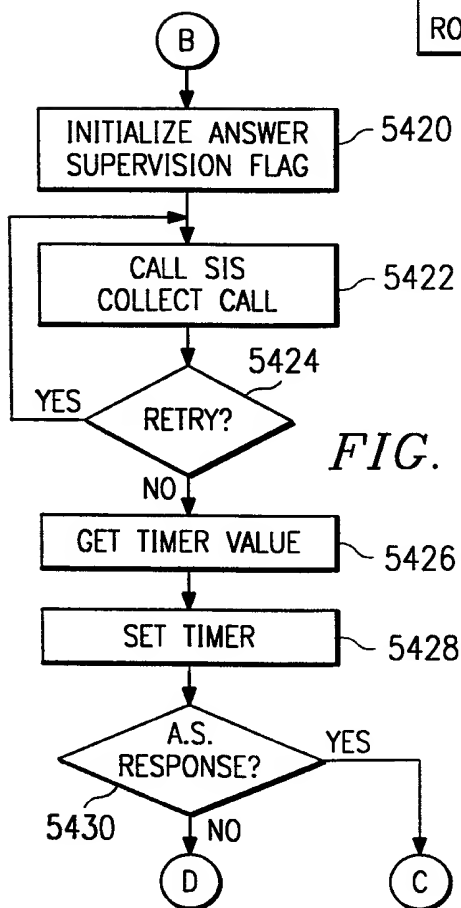
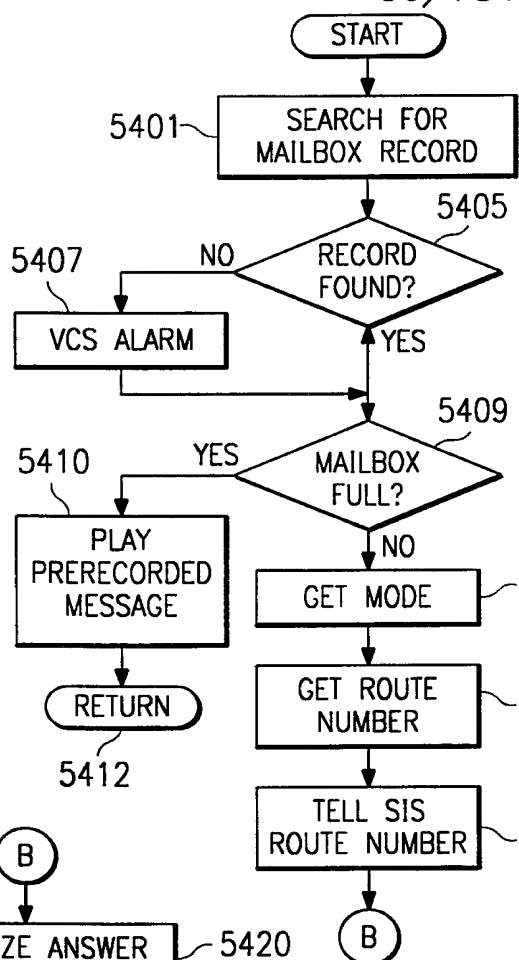
View Your Profile

Reset

700

FIG. 57

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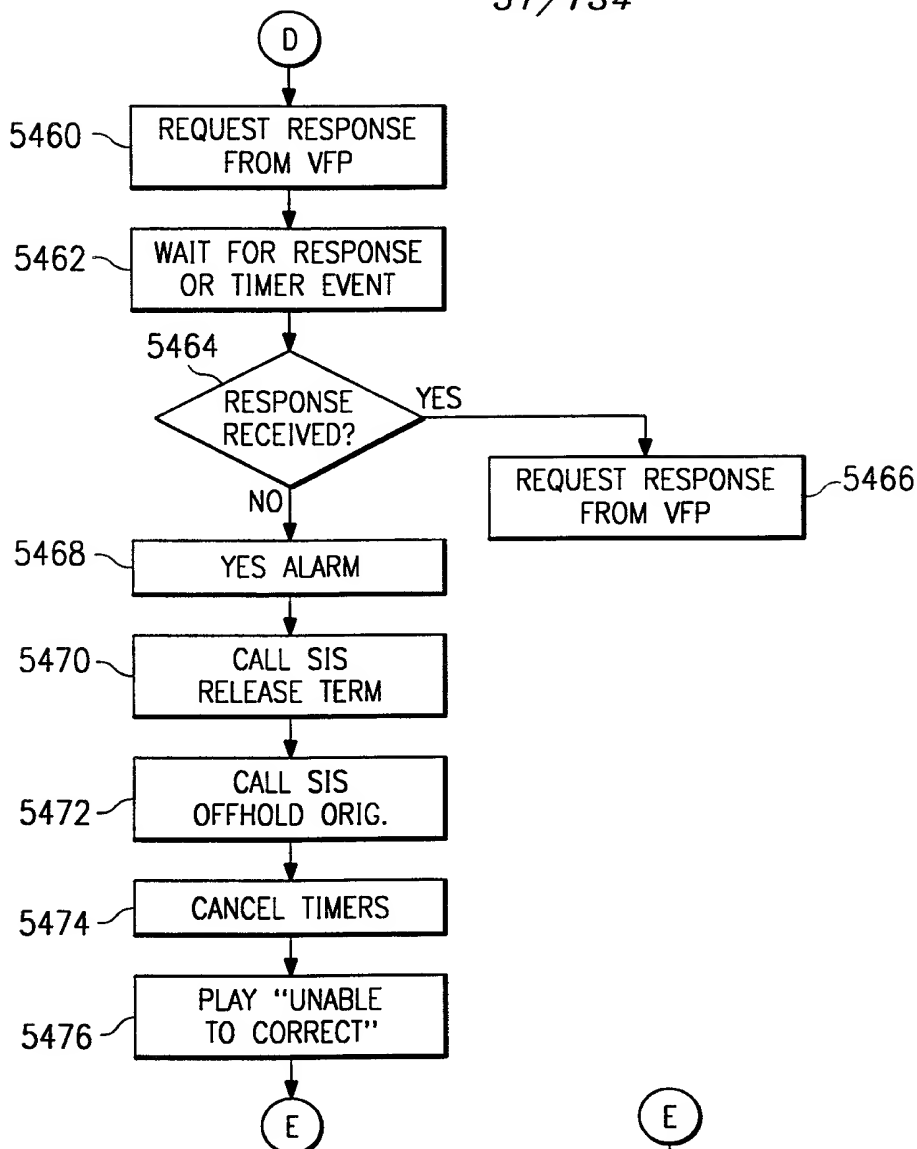


FIG. 54D

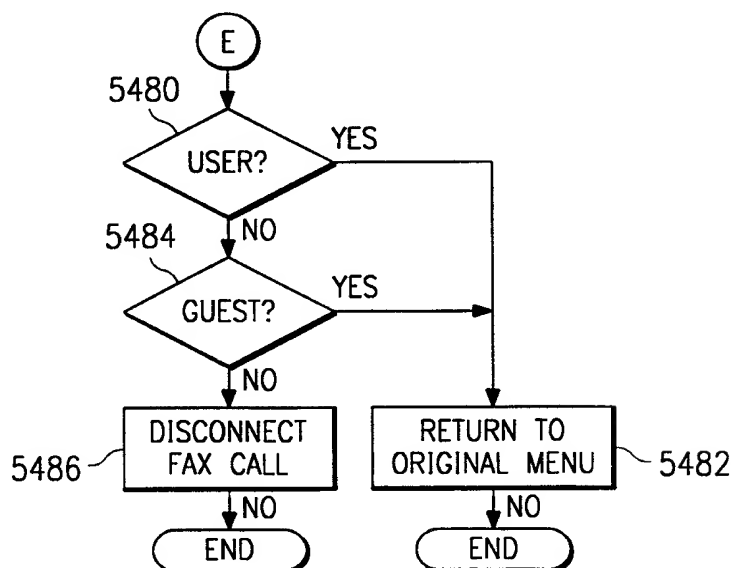


FIG. 54E

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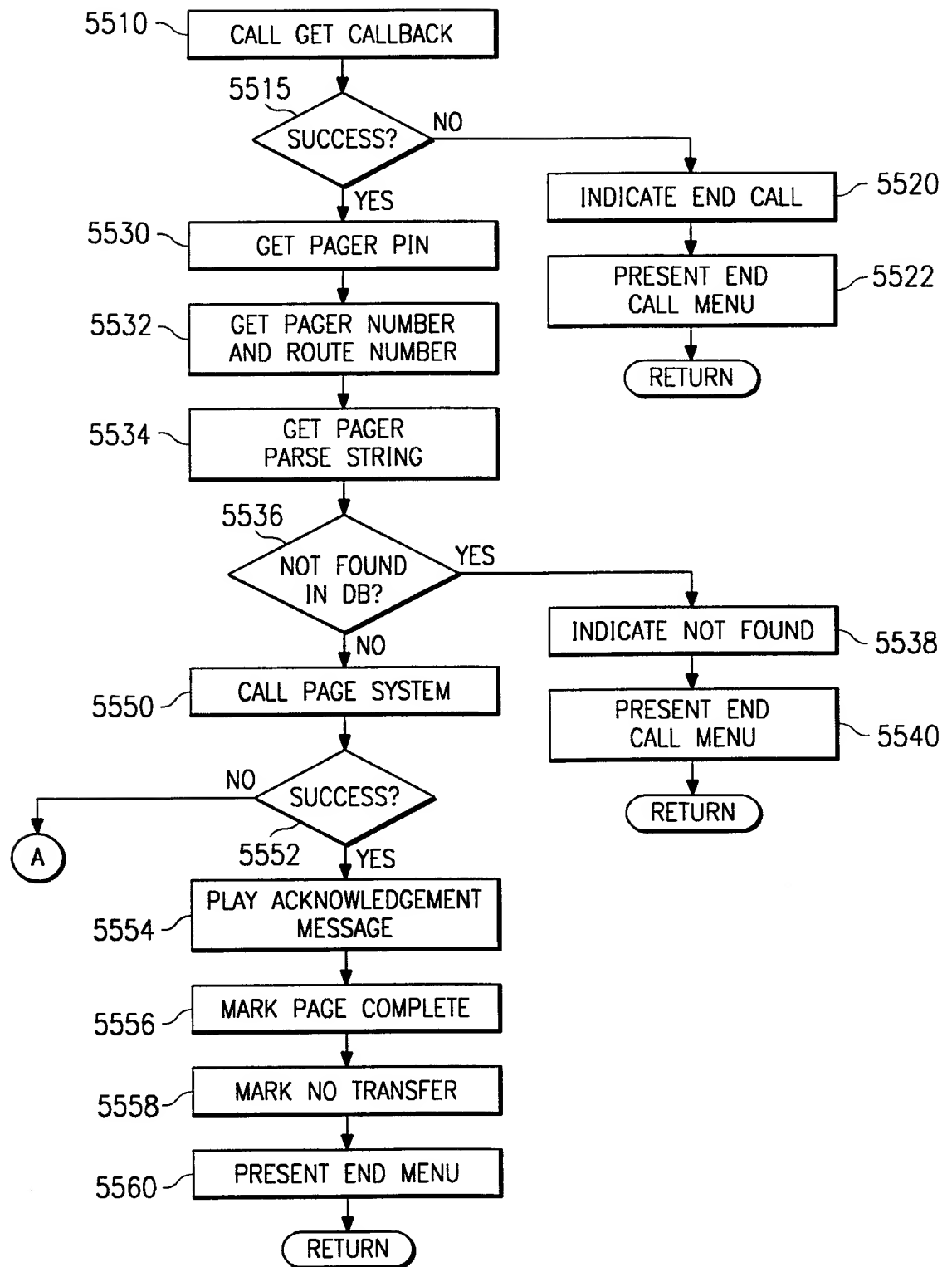


FIG. 55A

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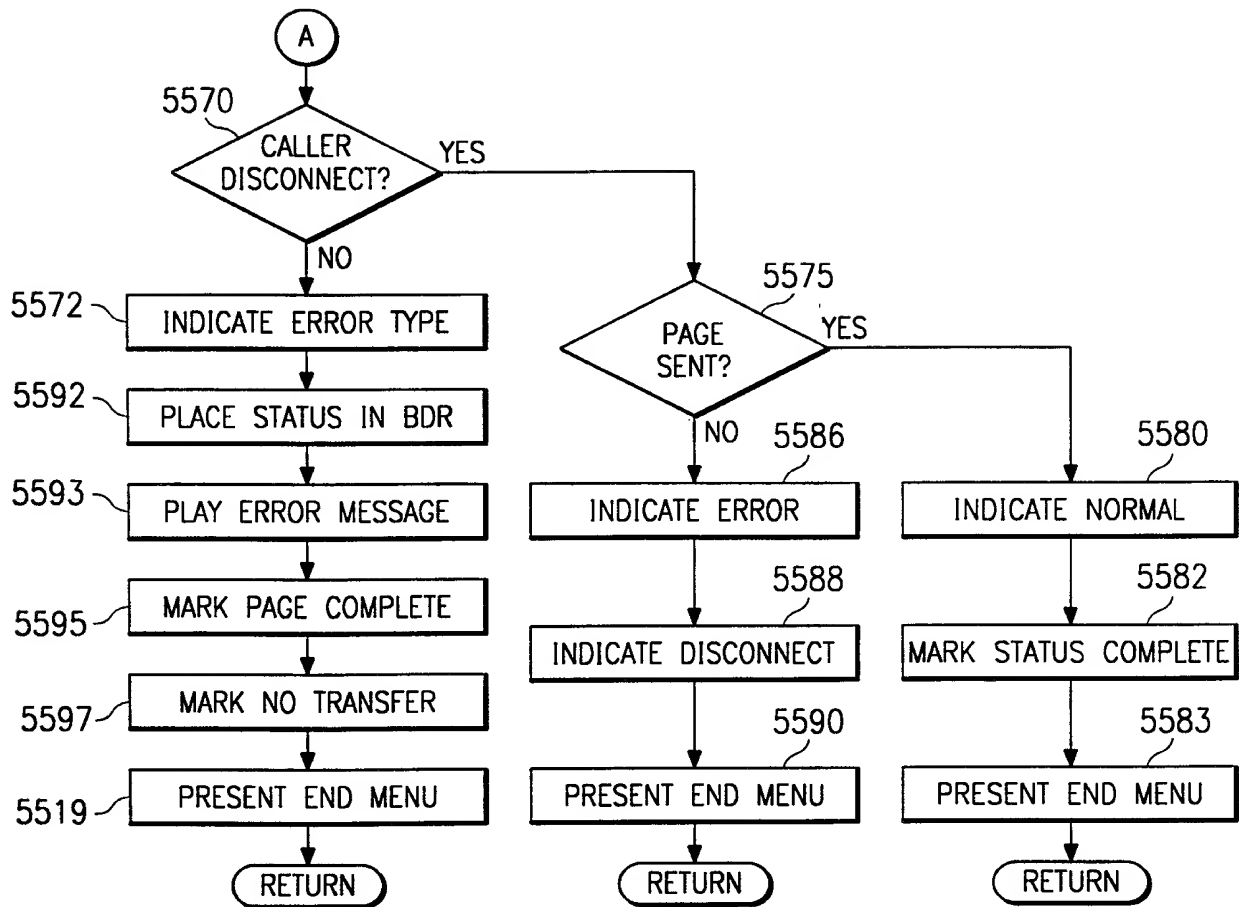


FIG. 55B

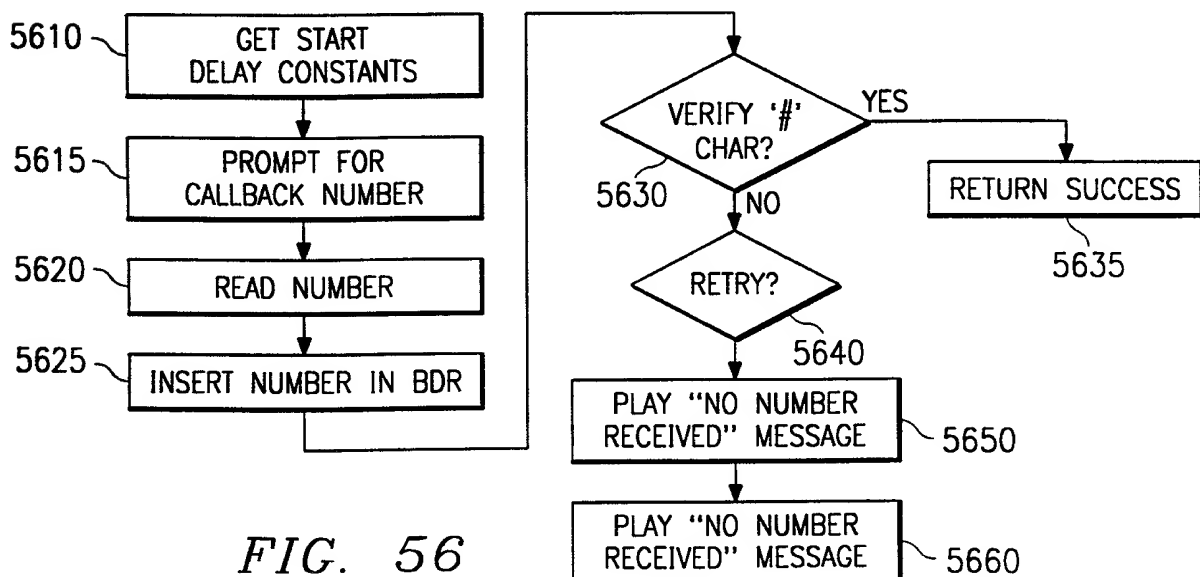


FIG. 56

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**Call Routing**

714 ☐ Do Not Accept Calls

712 If you elect not to accept calls, your callers will receive a message informing them that you are not accepting calls through your directlineMCI number.

☐ Accept Calls

716

Choose from the selections below:

718 ☐ Guest Menu

☐ No Menu - Override Routing

When I cannot be reached, route my calls to:

720 ☐ Voicemail

☐ Pager

☐ Voicemail or Pager

☐ Closing Message (notifies guests to try you later)

710

FIG. 58

**Speed Dial Numbers**

You can program up to 9 frequently dialed numbers - either domestic or international - below. For international numbers, include 011, the country and city codes as applicable.

1 <input style="width: 150px;" type="text"/>	6 <input style="width: 150px;" type="text"/>
2 <input style="width: 150px;" type="text"/>	7 <input style="width: 150px;" type="text"/>
3 <input style="width: 150px;" type="text"/>	8 <input style="width: 150px;" type="text"/>
4 <input style="width: 150px;" type="text"/>	9 <input style="width: 150px;" type="text"/>
5 <input style="width: 150px;" type="text"/>	

744

FIG. 61



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## Guest Menu

In order to complete the selections on this screen, please make sure you have checked this option, 'Guest Menu', on the Routing Screen. If you have not, please return to the Call Routing Screen and select this option.

Present the following selected options to my guests:

- 732 ☒ Find-Me Routing\*  
 (This options allows the guest to speak to you directly)
- ☐ Schedule Routing  
 (To set schedule routing, call directlineMCI Customer Service at 1-800-870-5898)
- ☐ Three Number Sequence  
 (Enter up to three phone numbers to locate you and the maximum number of rings for each number. For international numbers include 011, the country and city codes as applicable)
- |       |                      |                               |
|-------|----------------------|-------------------------------|
| 1st # | <input type="text"/> | <input type="text"/>          |
| 2nd # | <input type="text"/> | <input type="text"/>          |
| 3rd # | <input type="text"/> | <input type="text"/>          |
|       | Number               | Ring Limit<br>(1 to 16 rings) |
- 734 ☒ Leave a Voicemail\*
- 736 ☒ Send a Fax\*
- 738 ☐ Send a Page
- \* To select or deselect this option, you must contact directlineMCI Customer Service at 1-800-870-5898.

Update Guest Menu

Reset

730

FIG. 59

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## No Menu – Override Routing

In order to complete the selections on this screen, please make sure you have checked this option, 'No Menu – Override' on the Call Routing Screen. If you have not, please return to Call Routing Screen and select this option.

Route my guests to:

☐ Find-Me Routing

(This options allows the guest to speak to you directly)

☐ Schedule Routing

(To set schedule routing, call directlineMCI Customer Service at 1-800-870-5898)

☐ Three Number Sequence

(Enter up to three phone numbers to locate you and the maximum number of rings for each number. For international numbers include 011, the country and city codes as applicable)

1st #

2nd #

3rd #

Number

Ring Limit

(1 to 16 rings)

☐ Voicemail

☐ Pager

☐ Temporary Override Number

Number

Ring Limit

Update Override Routing

Reset

740

FIG. 60

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### Voicemail

752 ☒ Receive Voicemail Messages\*

\*To select or deselect this option, you must contact directlineMCI Customer Service at 1-800-870-5898.

754 ☐ Page me each time I receive a Voicemail Message

750

FIG. 62

### Faxmail

762

My primary Fax number is NPA-Nxx-xxxx

764 ☒ Recieve Fax Messages\*

\*To select or deselect this option, you must contact directlineMCI Customer Service at 1-800-870-5898.

766 ☐ Page me each time I receive a Fax Message

760

FIG. 63

### Call Screening

☐ Allow me to screen my incoming calls by:

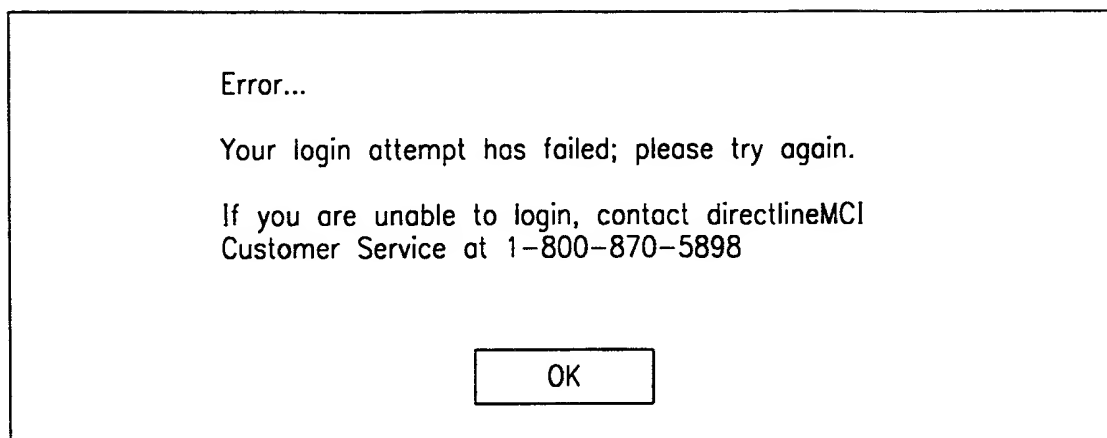
☐ Name only  
 (If guest does not provide name, directlineMCI will provide the guest's telephone number)

☐ Telephone Number only  
☐ Name and Telephone Number

770

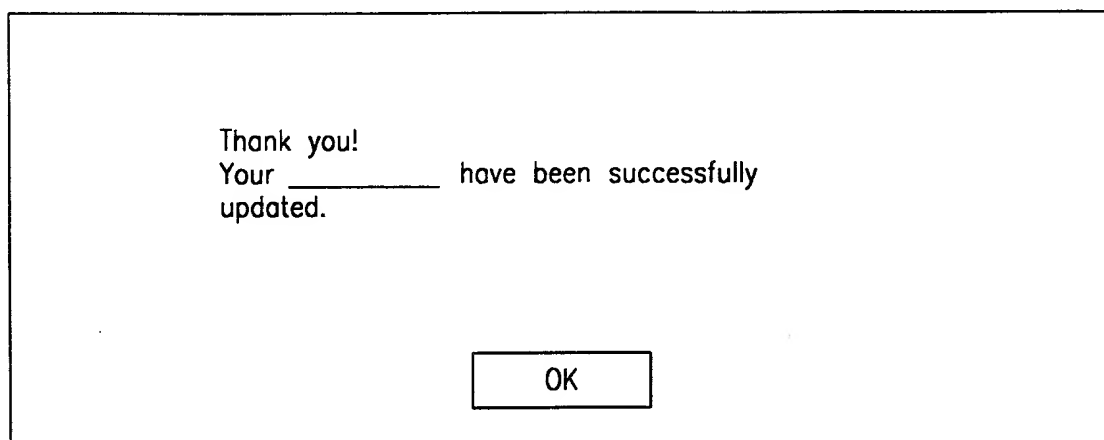
FIG. 64

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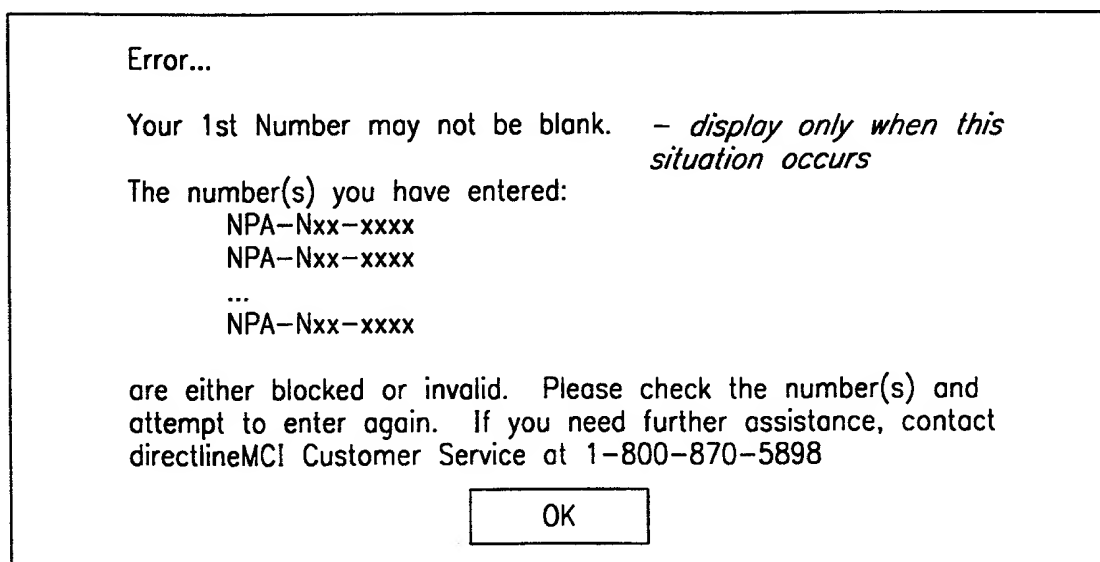
780

FIG. 65



782

FIG. 66



784

FIG. 67

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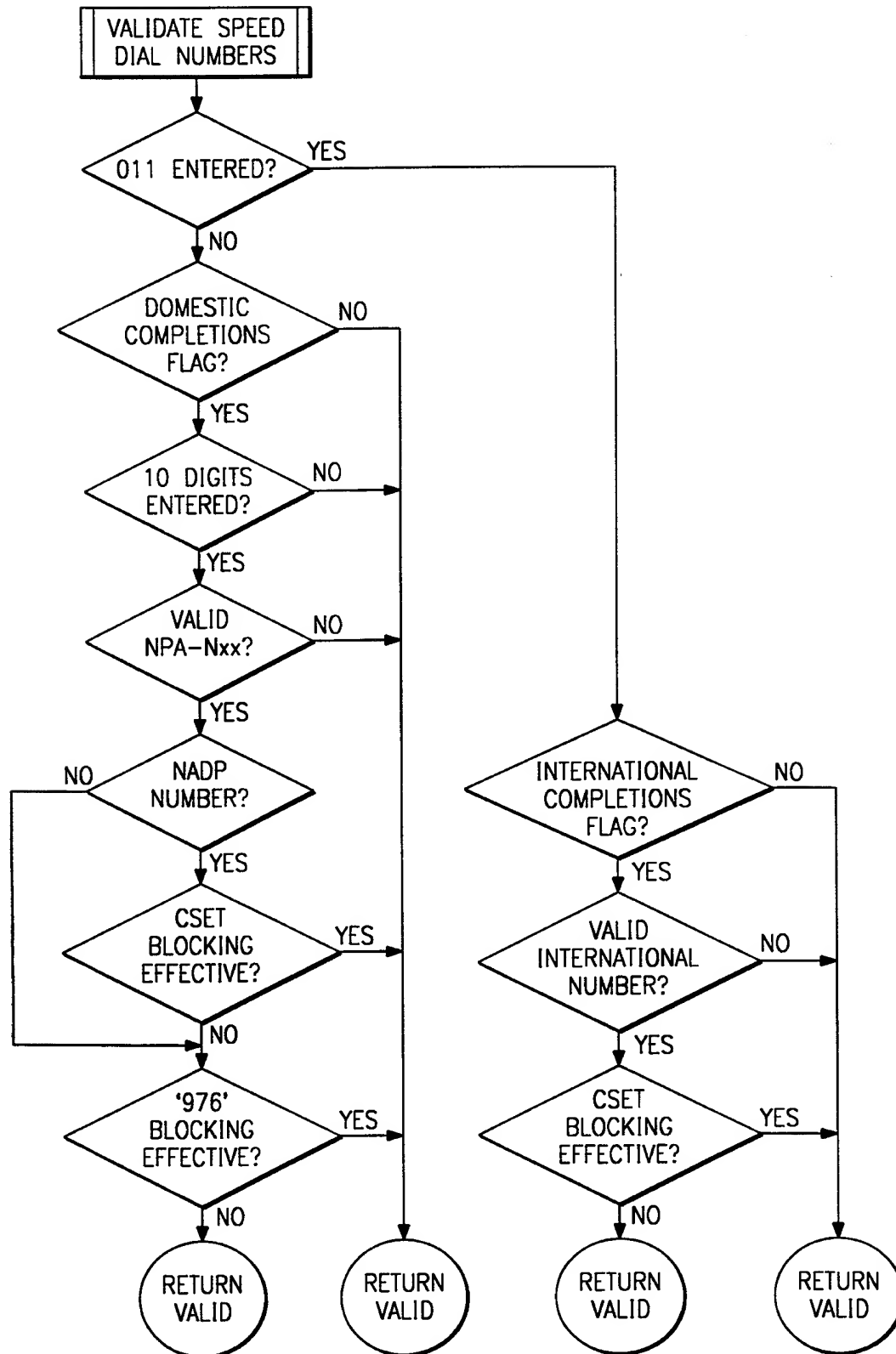
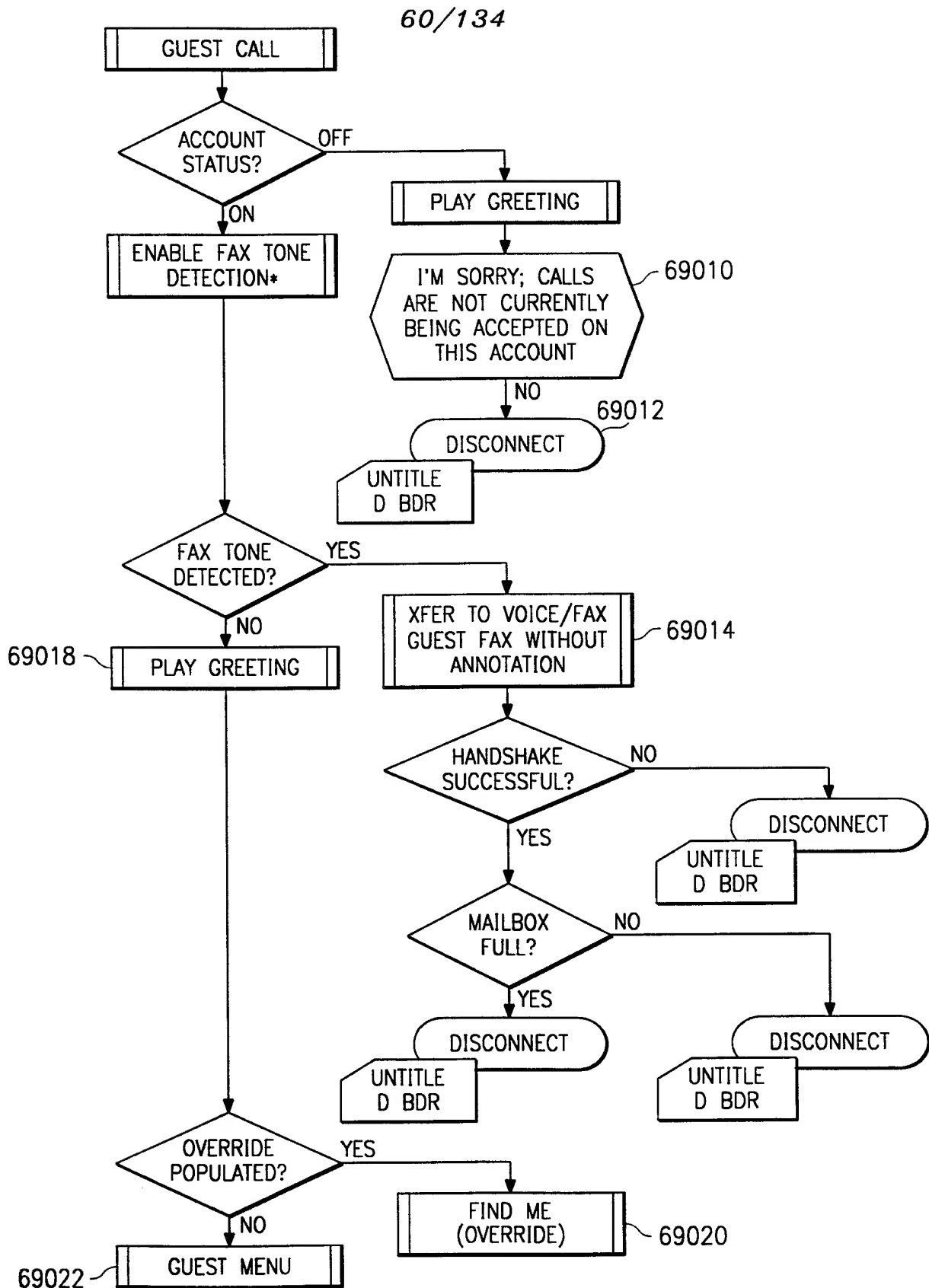


FIG. 68



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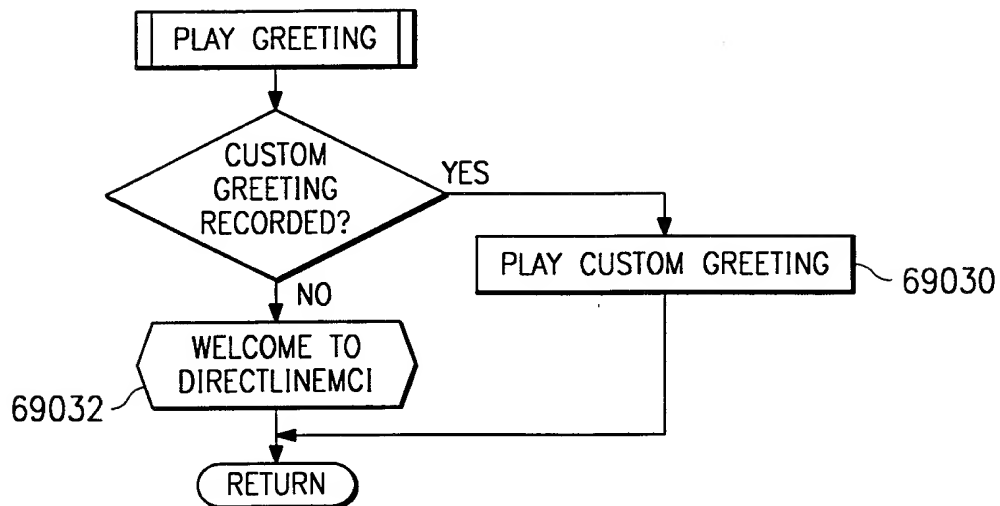


FIG. 69B

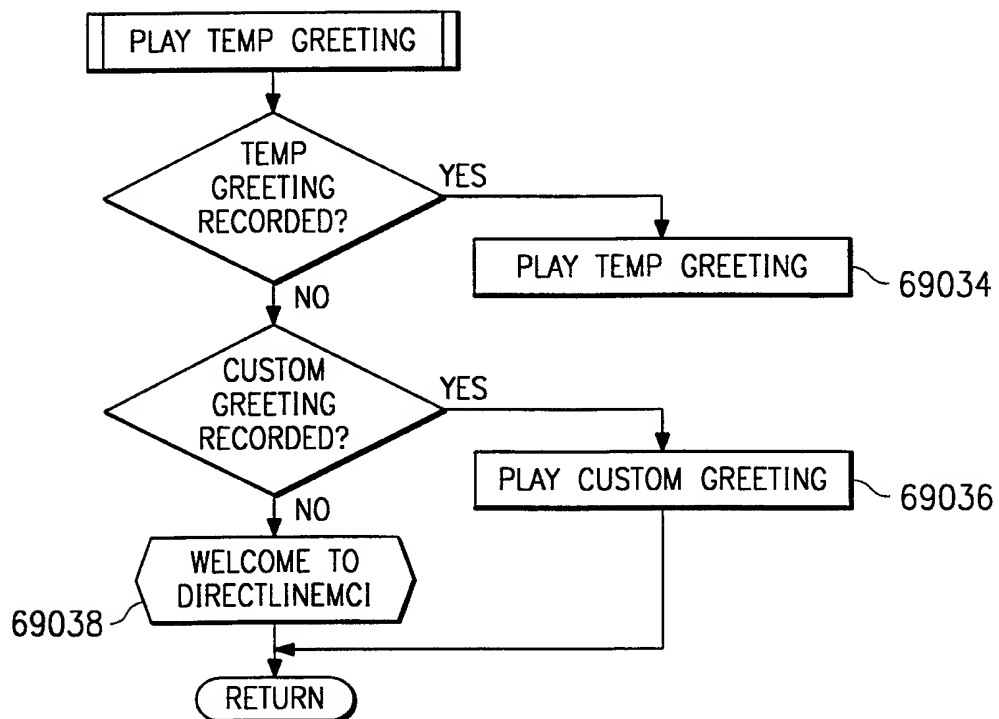


FIG. 69C

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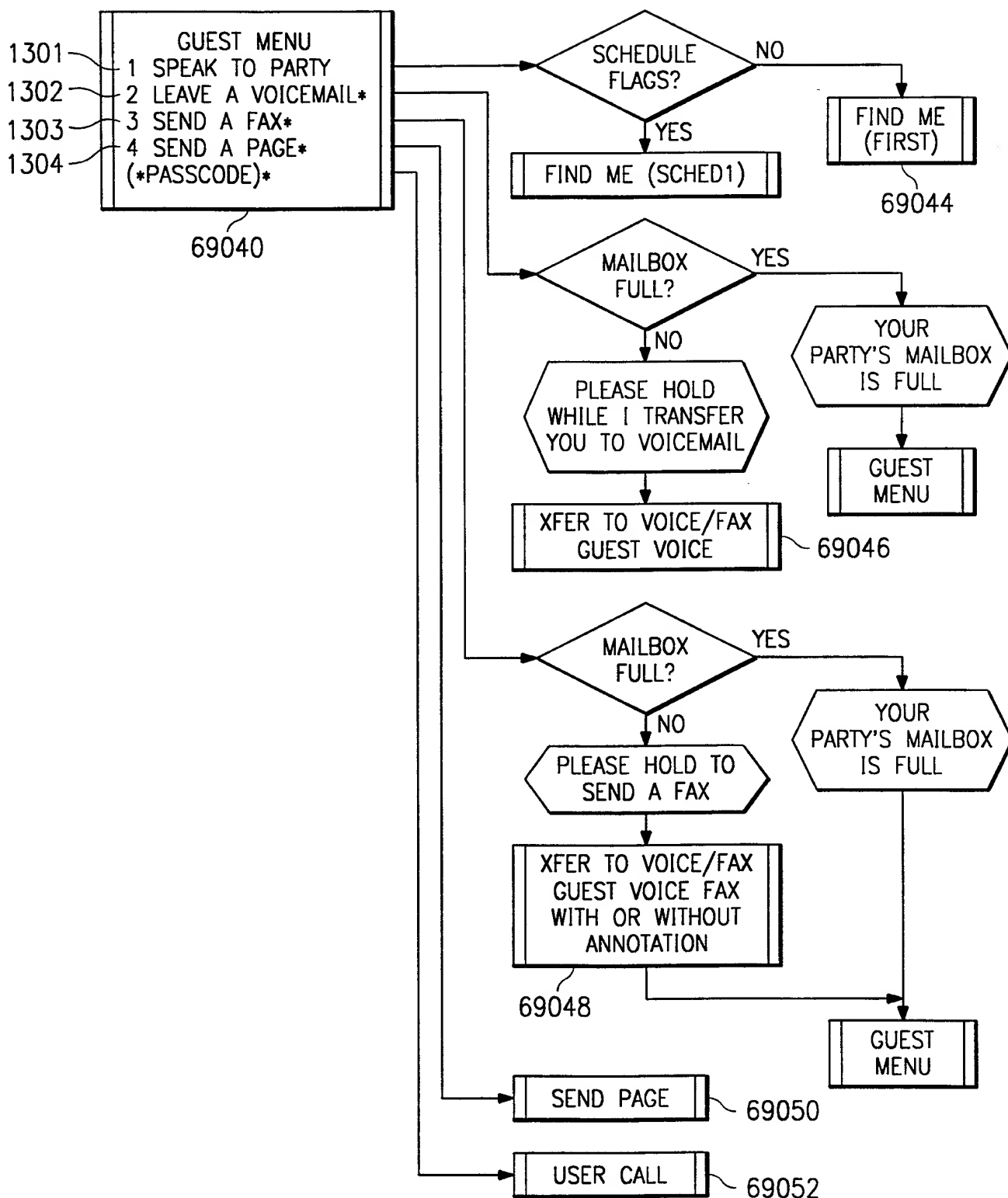
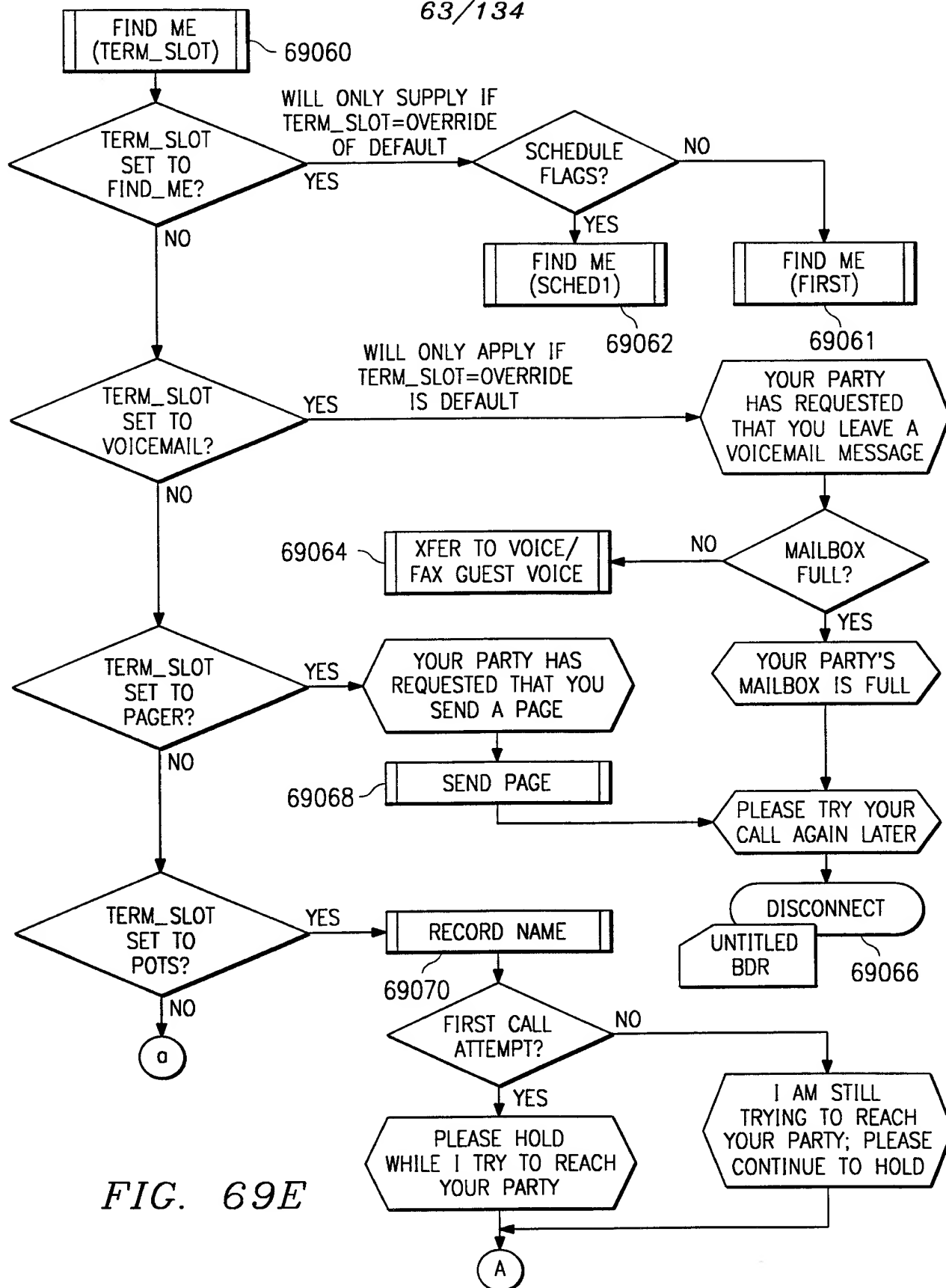


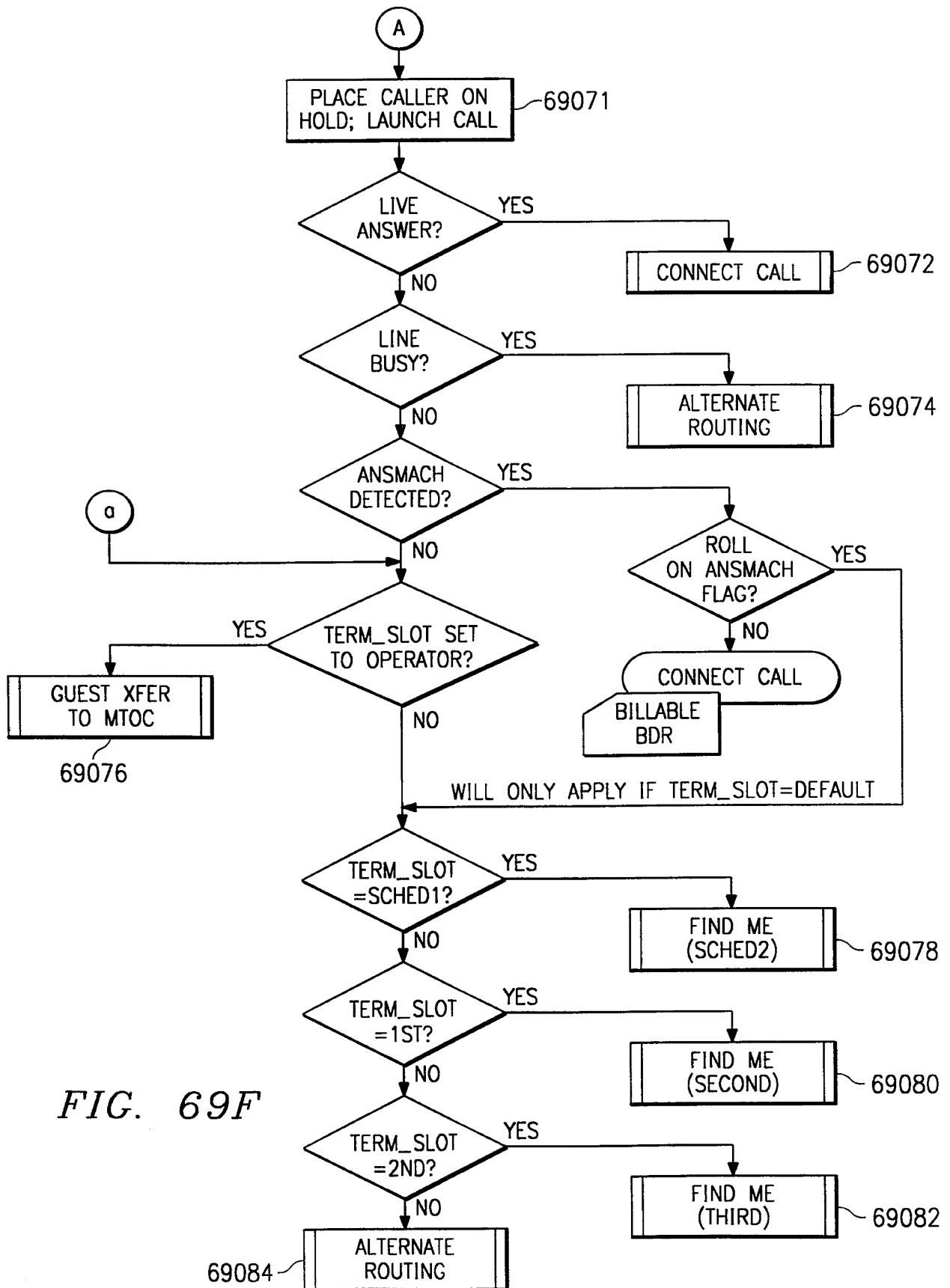
FIG. 69D



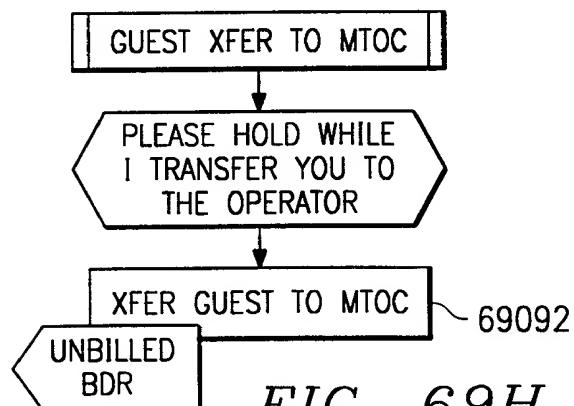
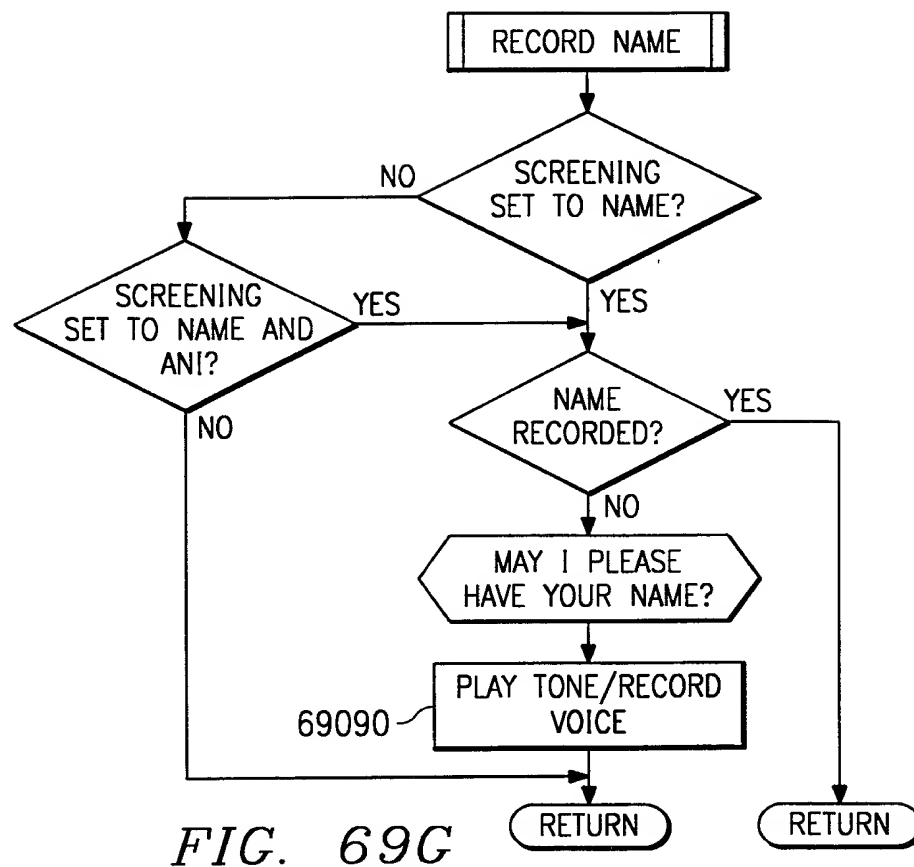
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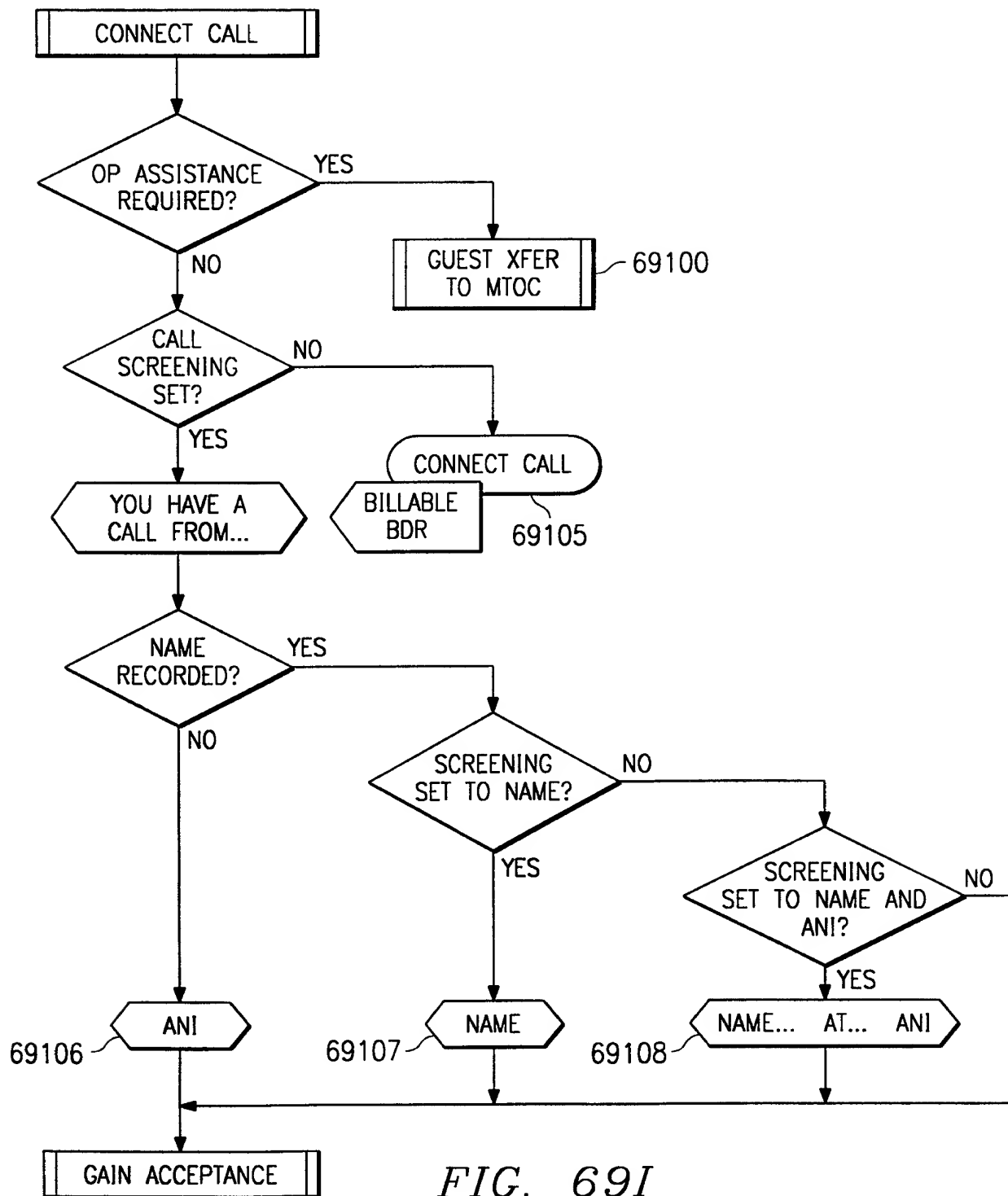
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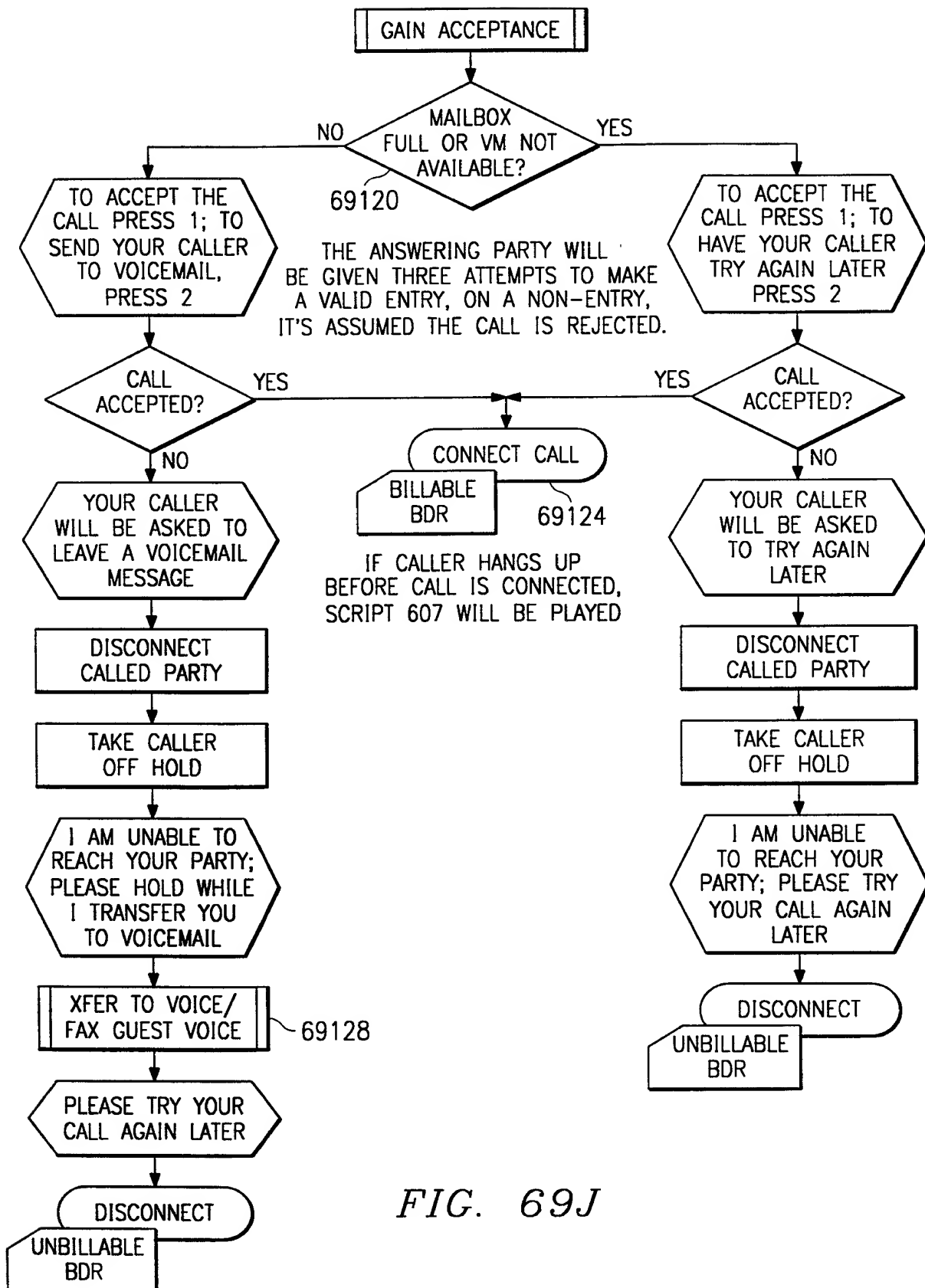


FIG. 69J

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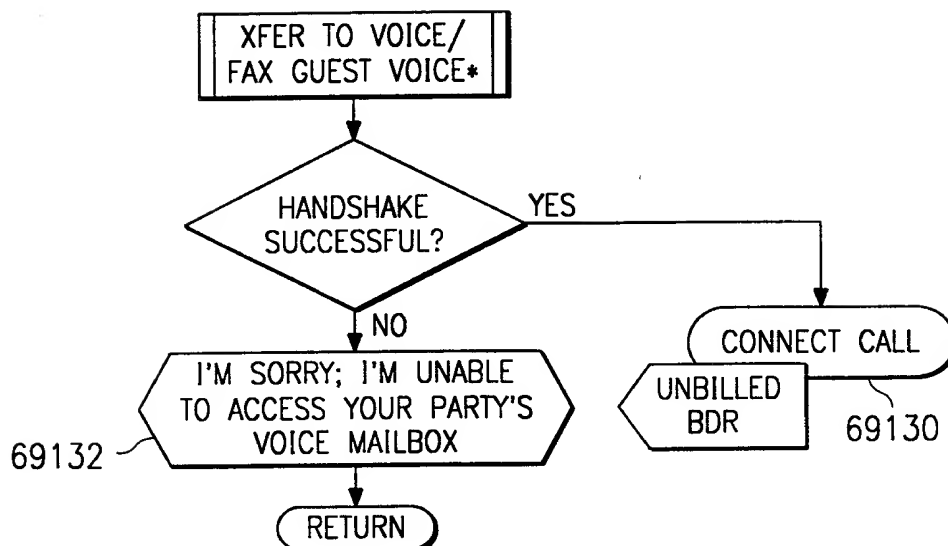


FIG. 69K

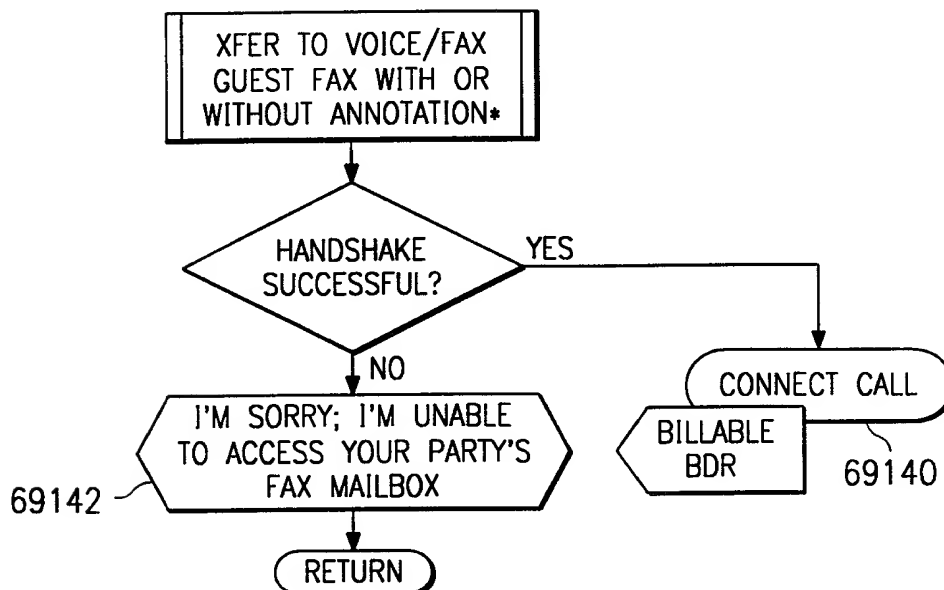


FIG. 69L

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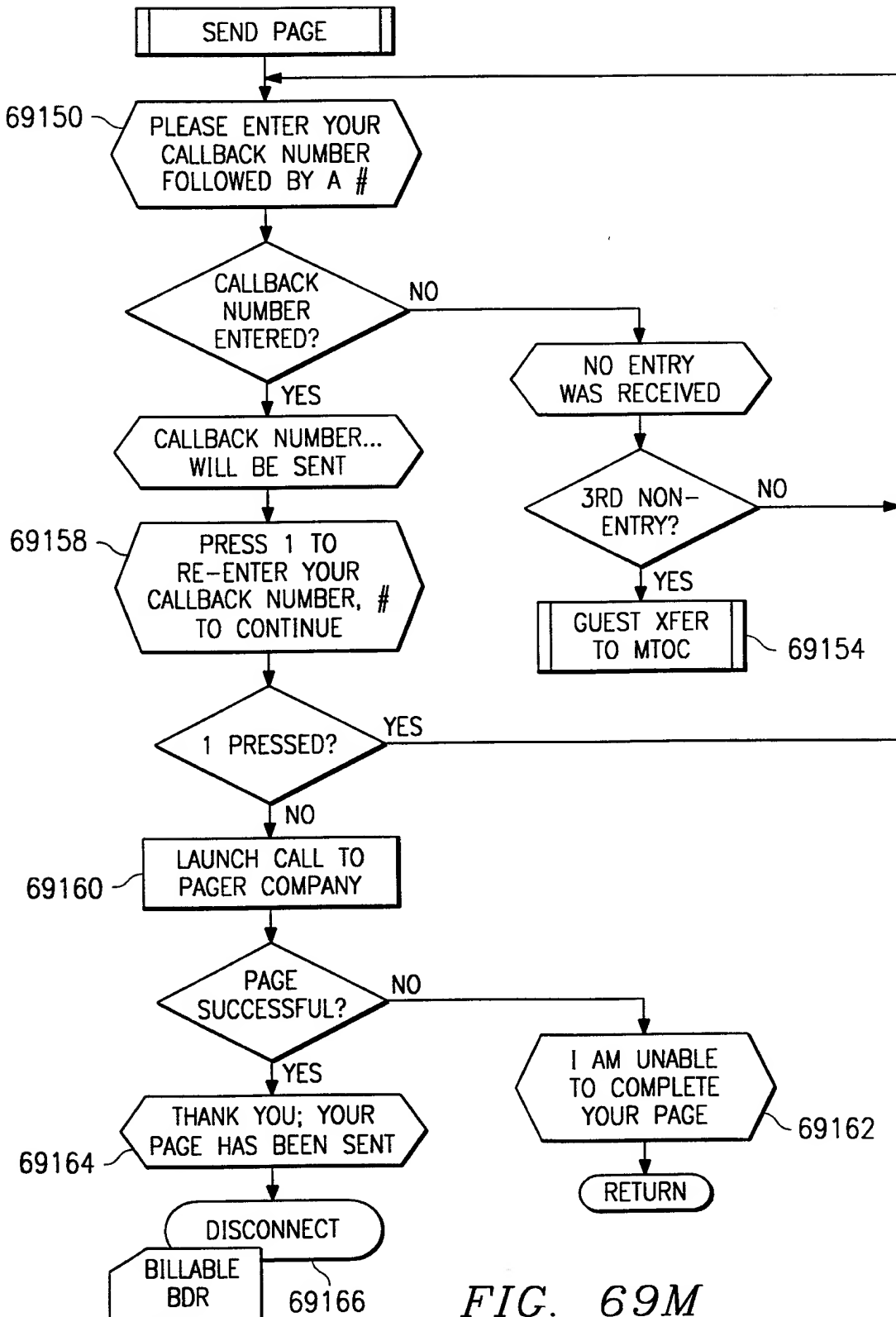


FIG. 69M

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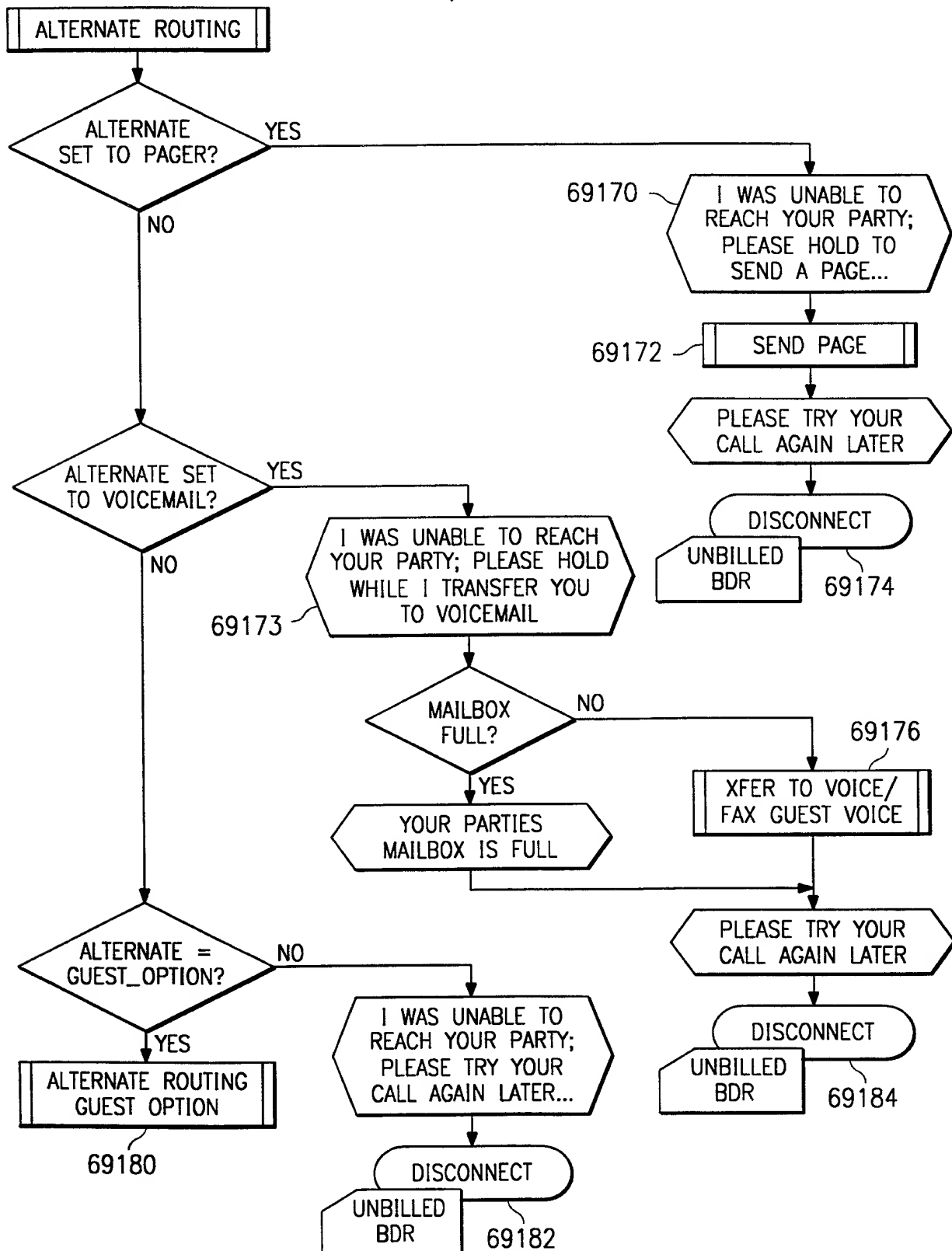


FIG. 69N



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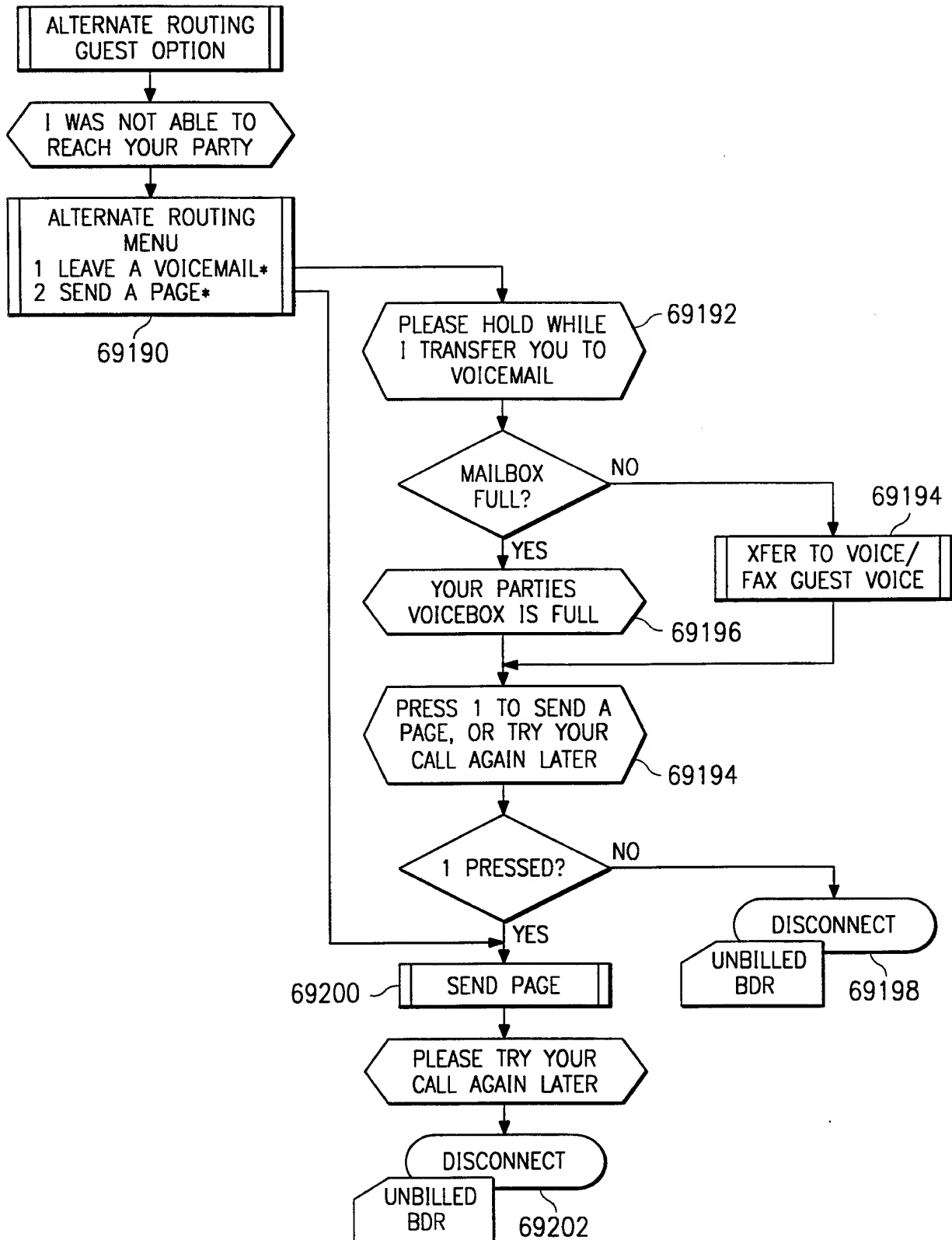


FIG. 690

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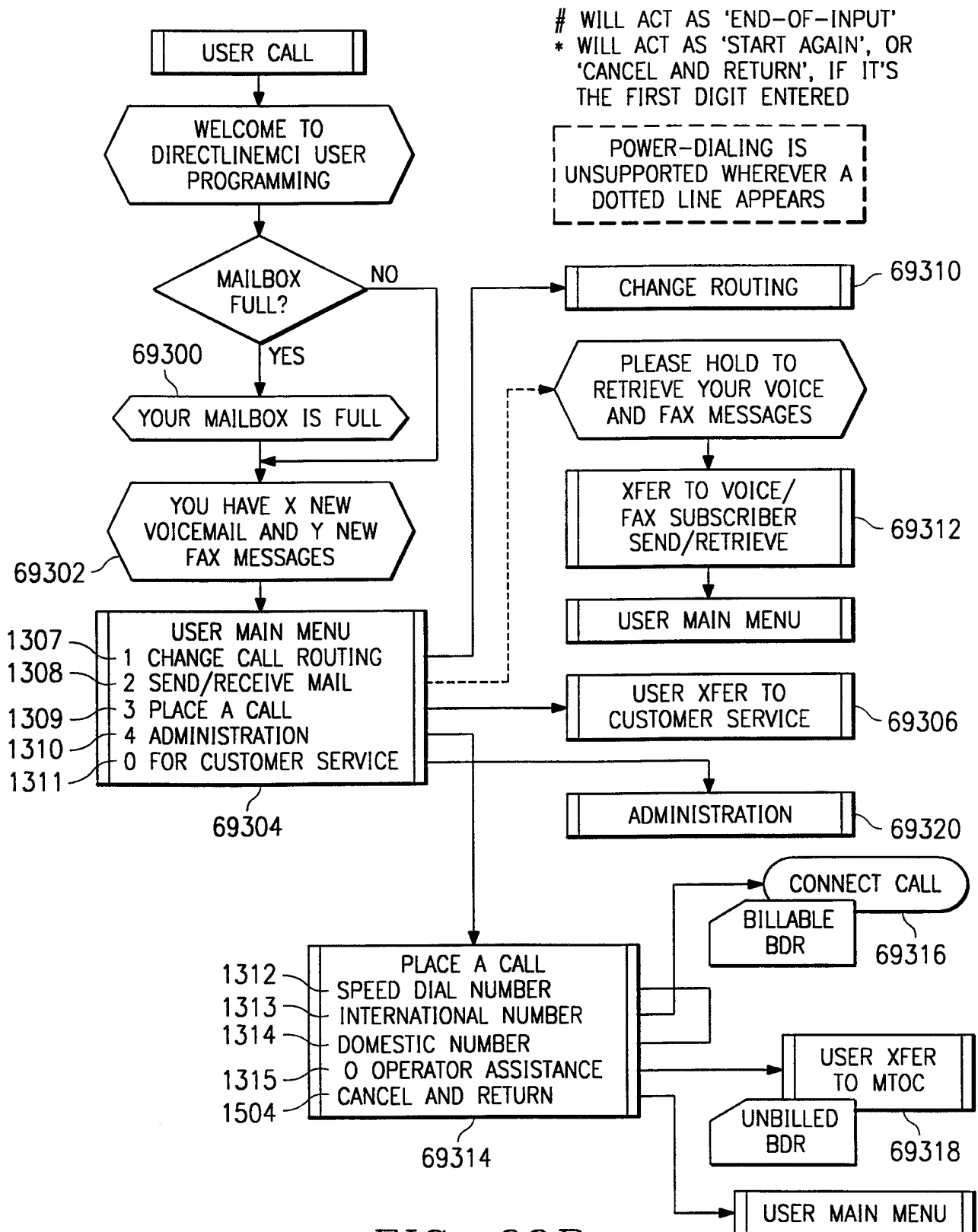


FIG. 69P

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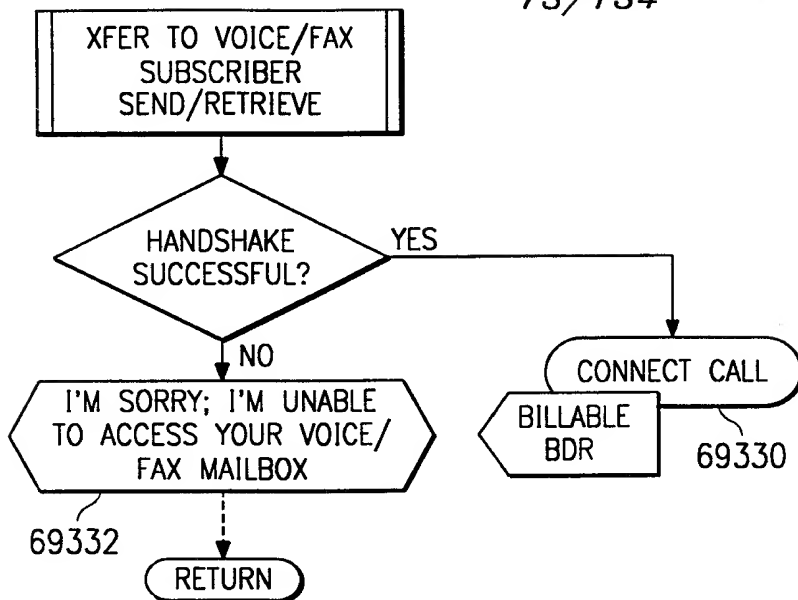


FIG. 69Q

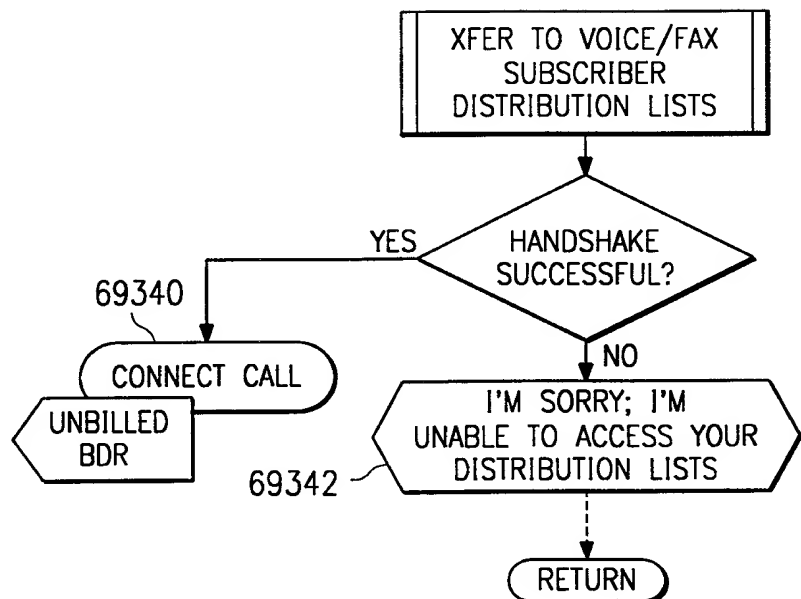


FIG. 69R

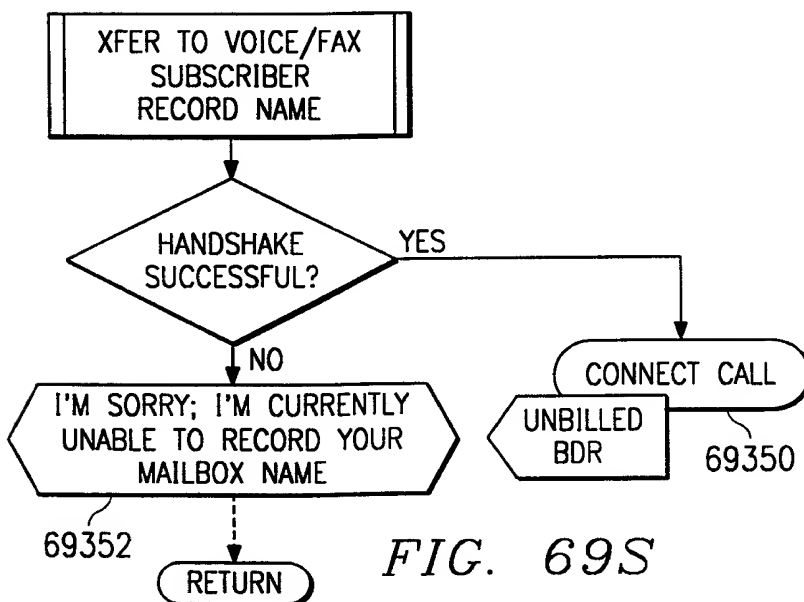


FIG. 69S

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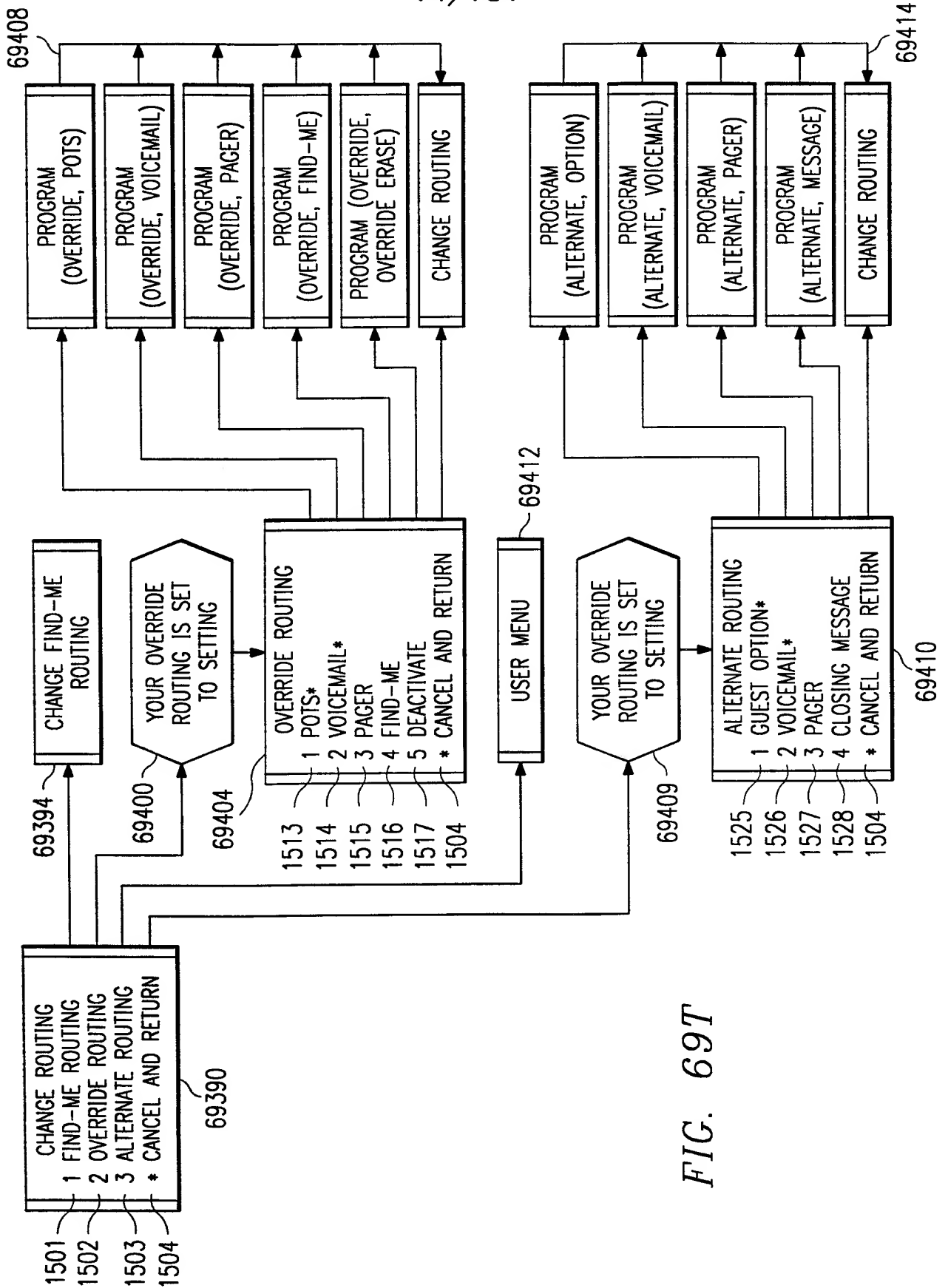


FIG. 69T

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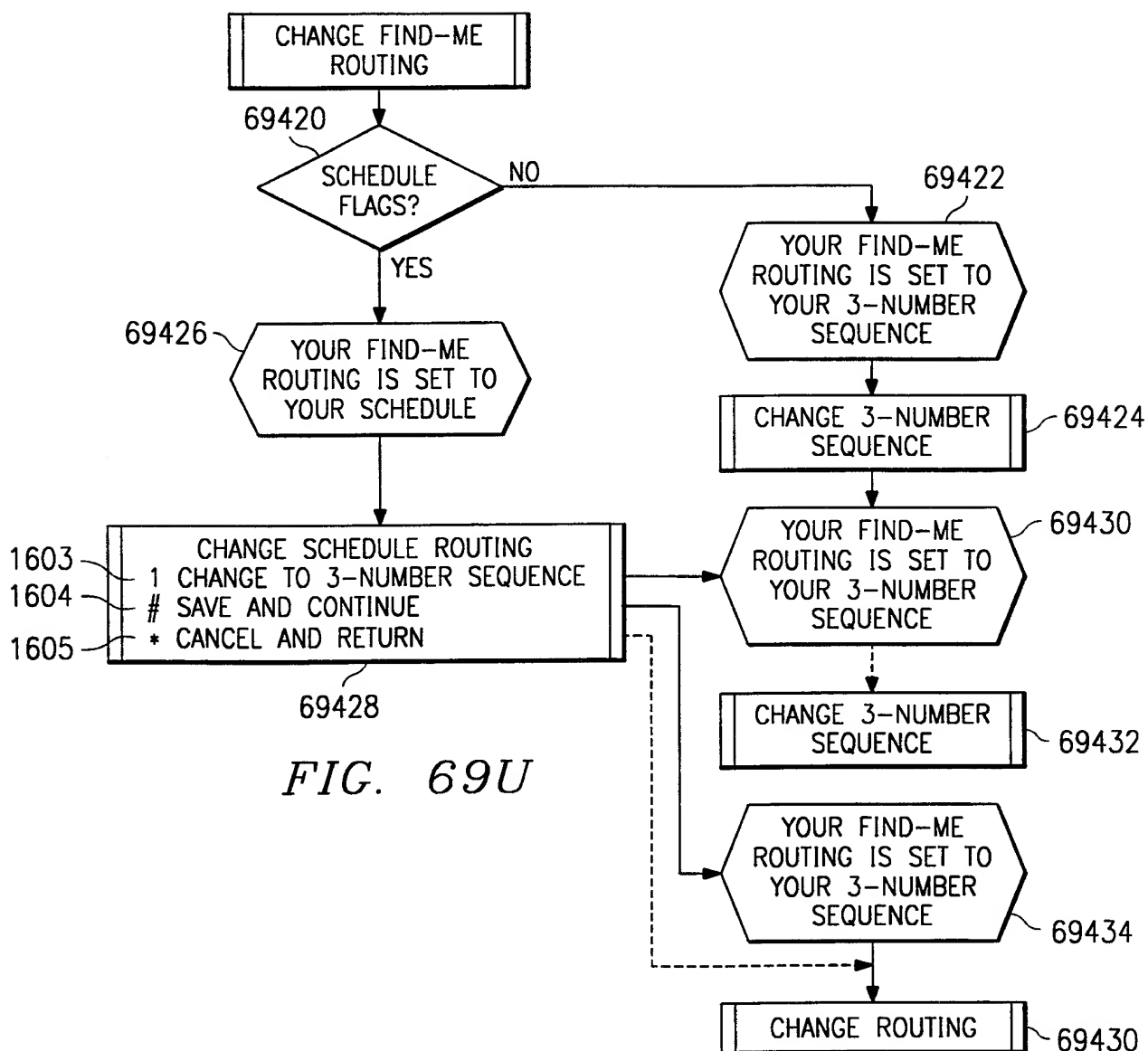


FIG. 69U

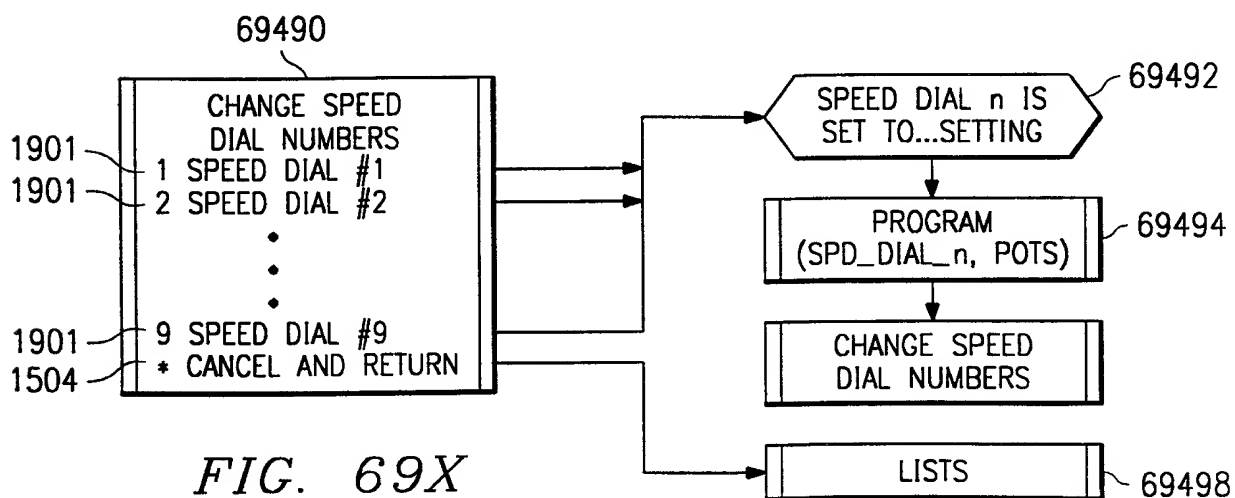
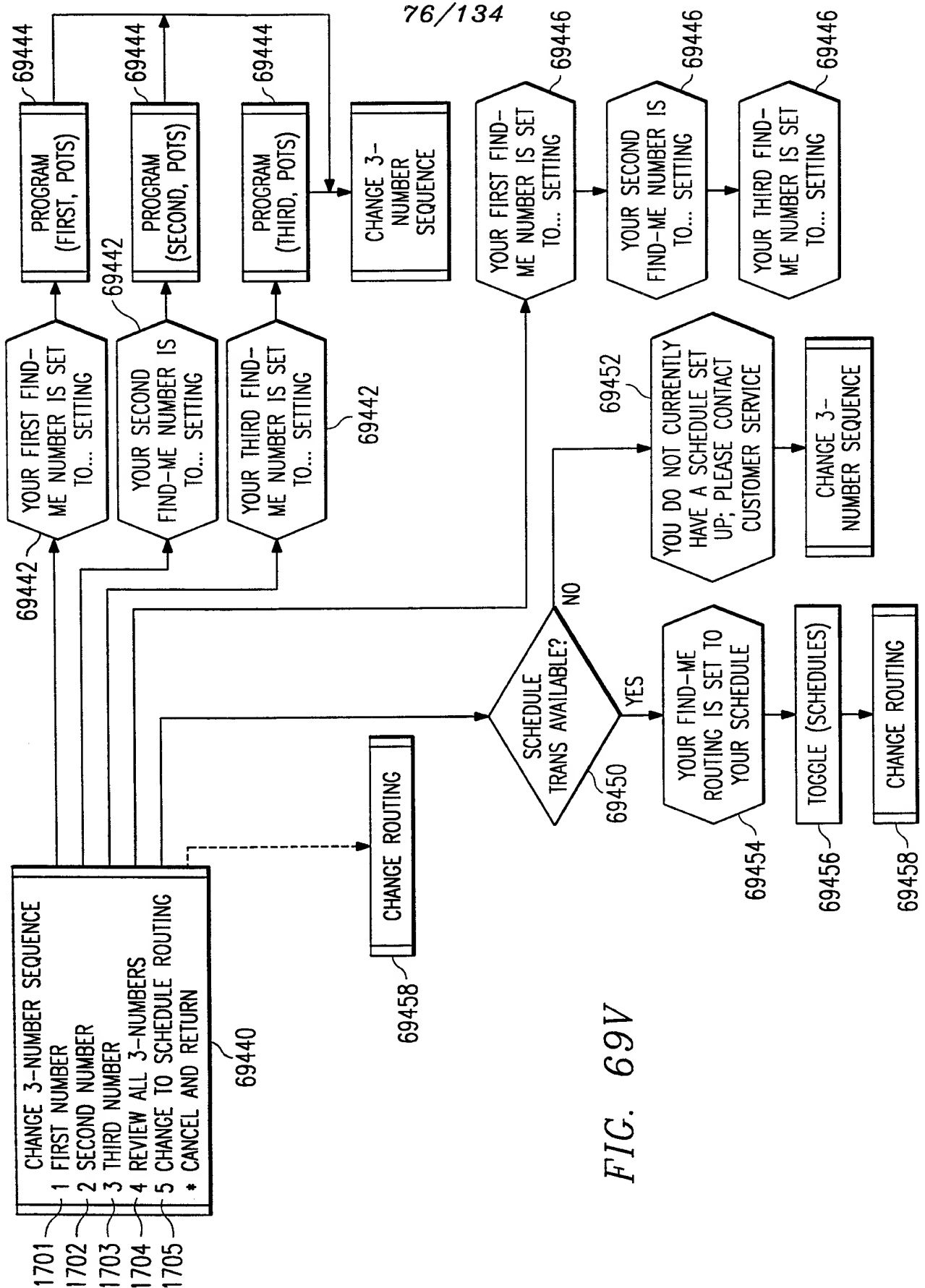


FIG. 69X



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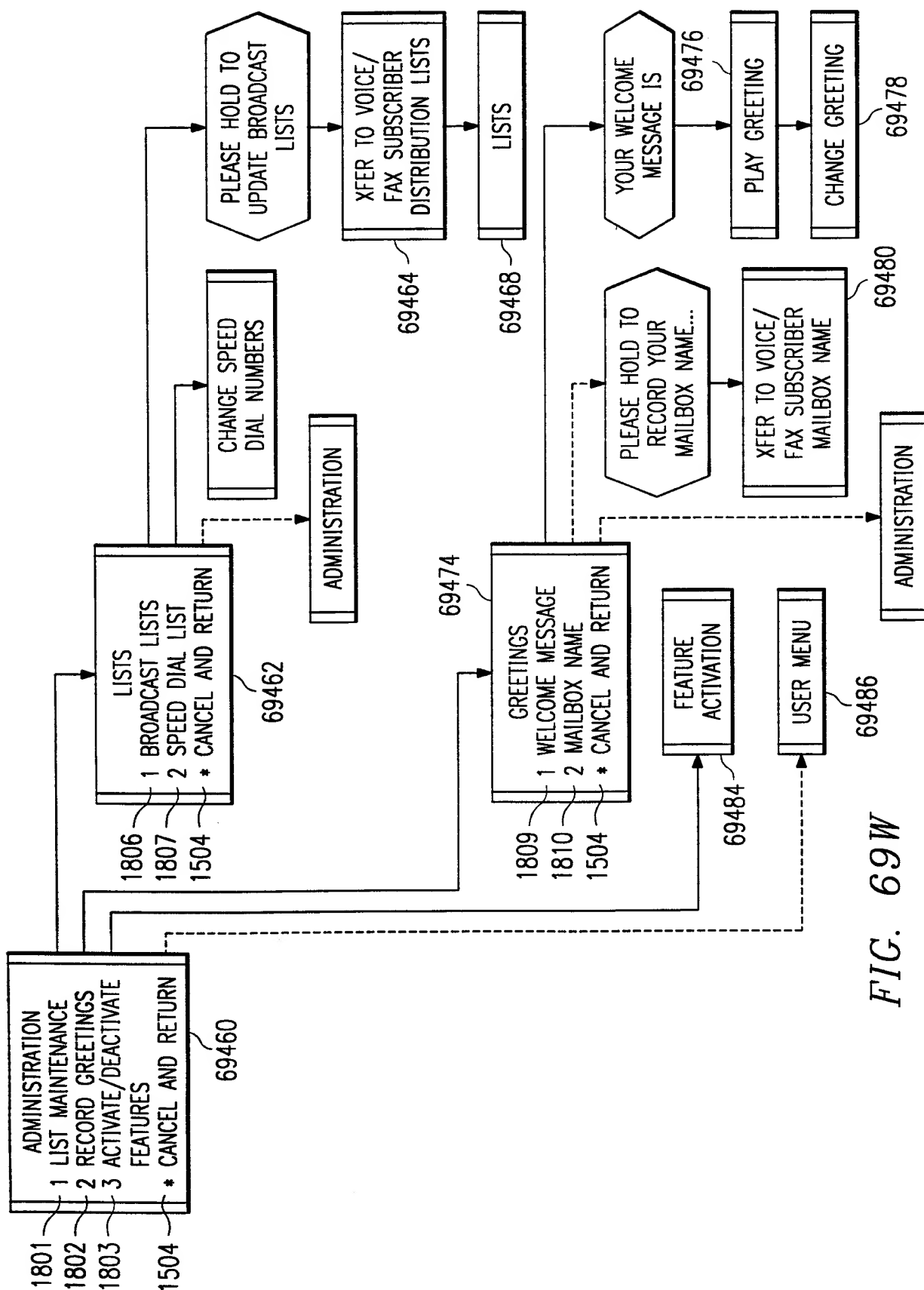
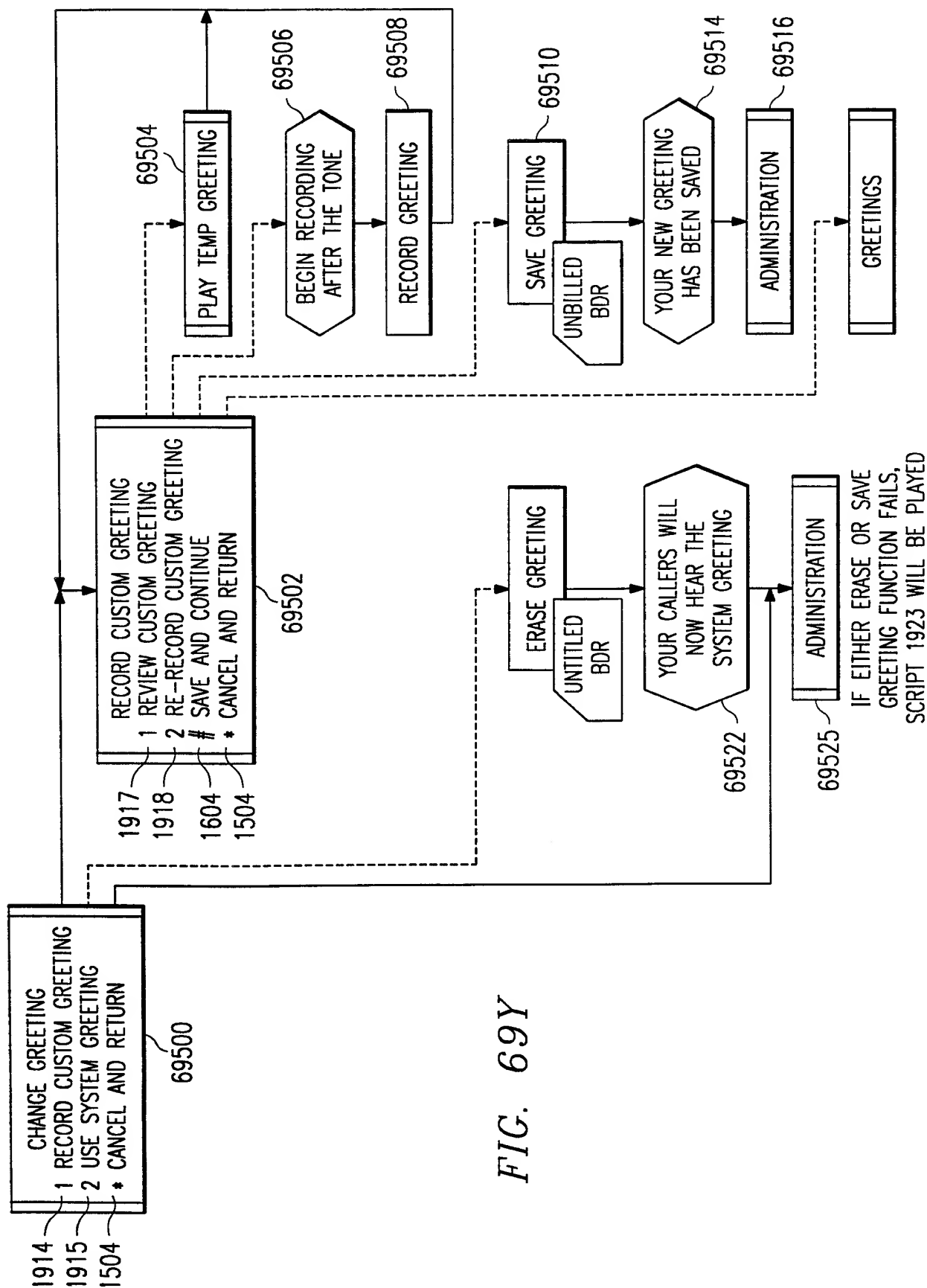


FIG. 69W

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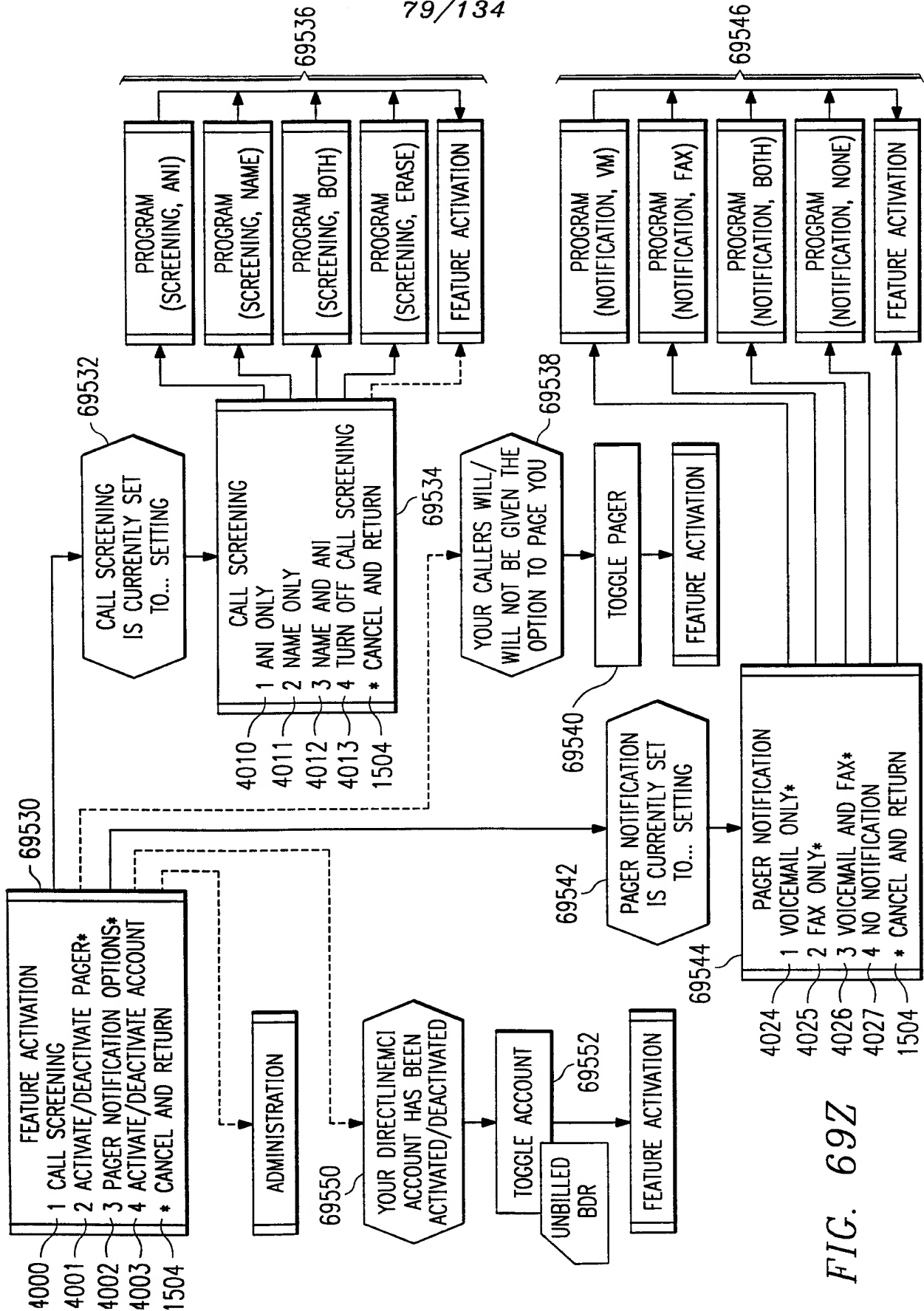
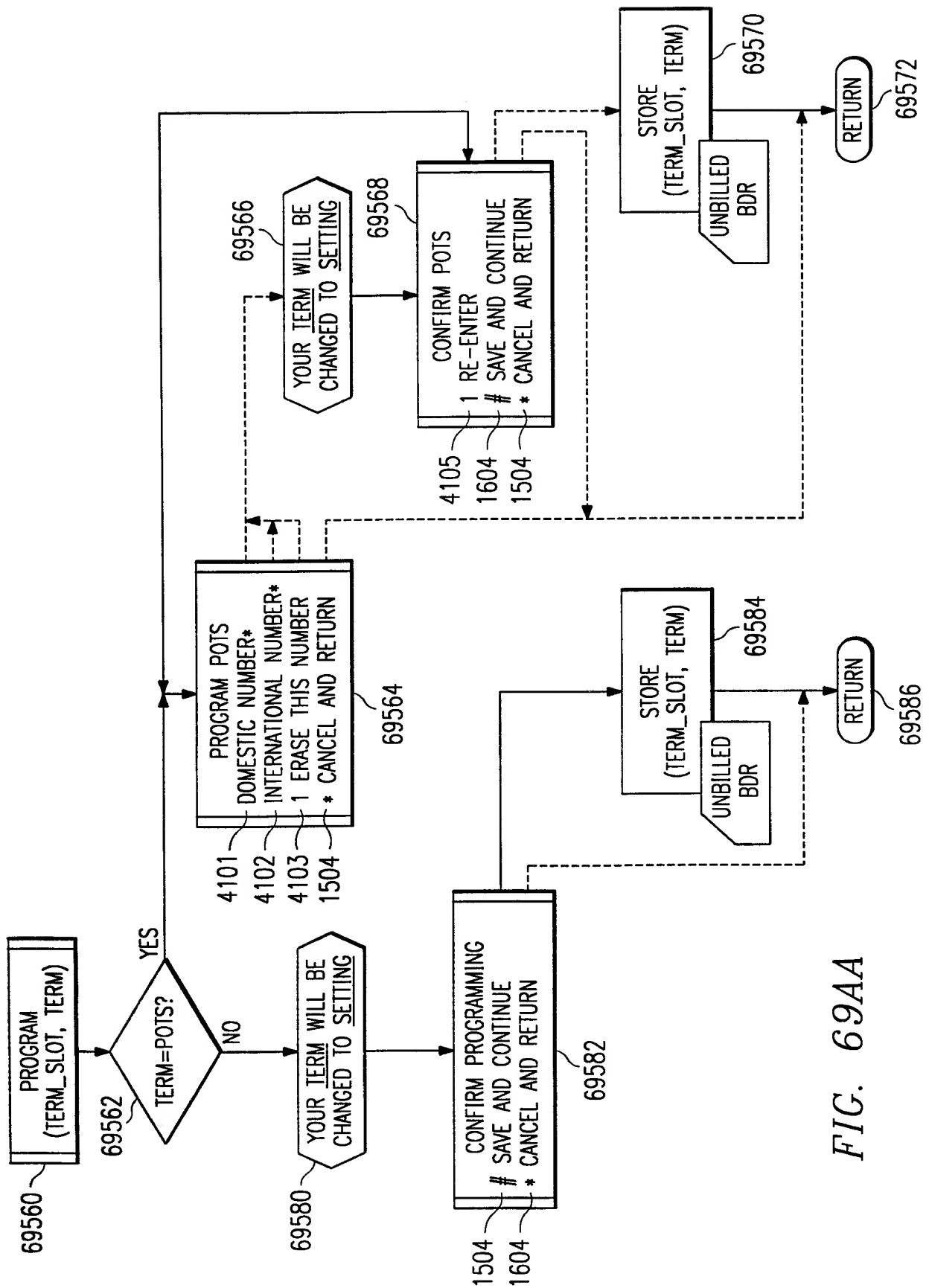


FIG. 69Z

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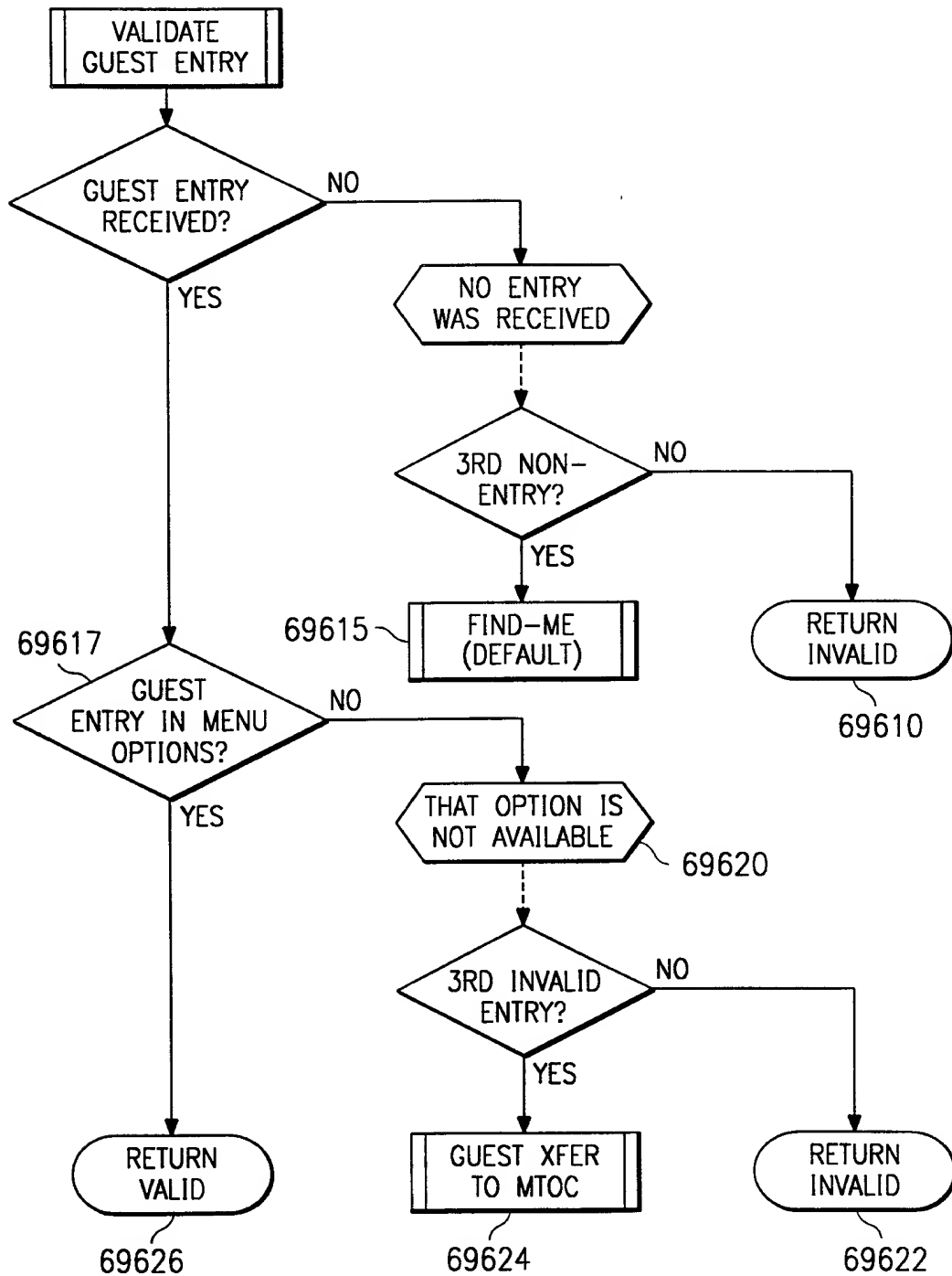


FIG. 69AB

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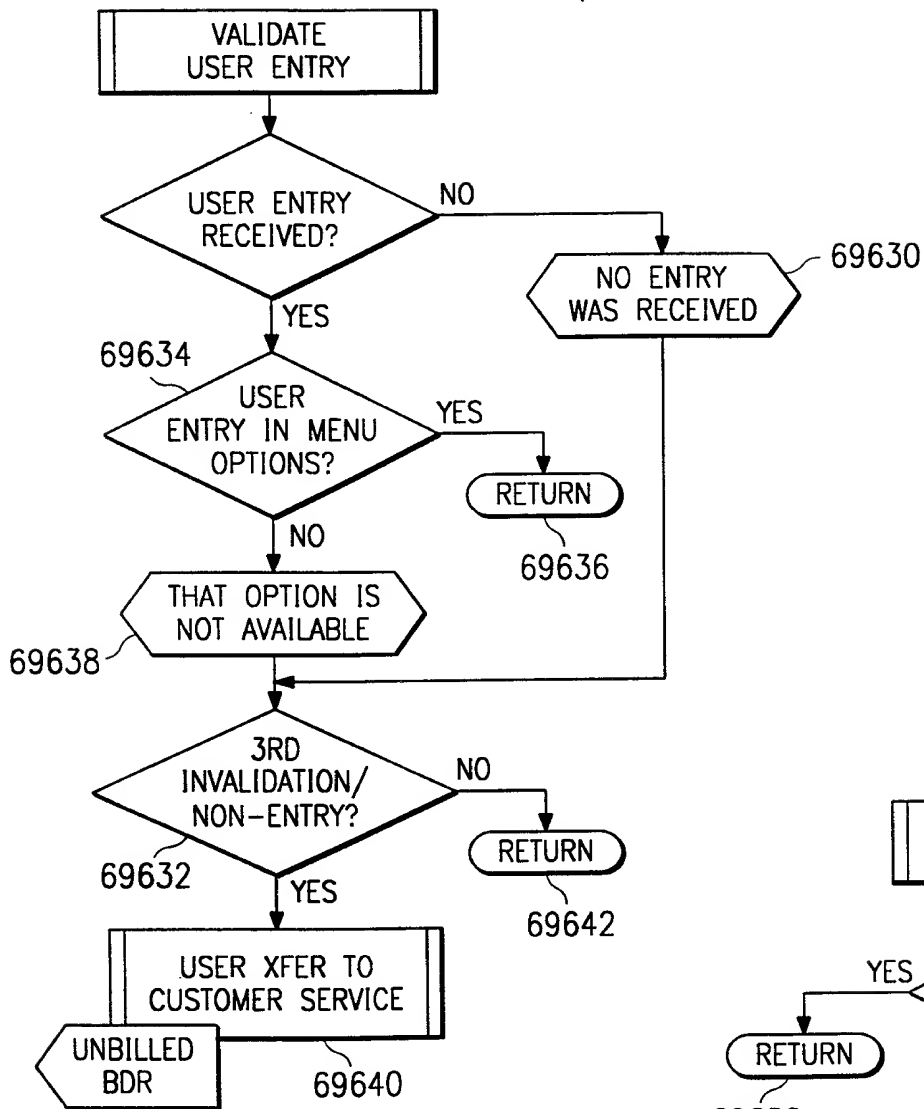


FIG. 69AC

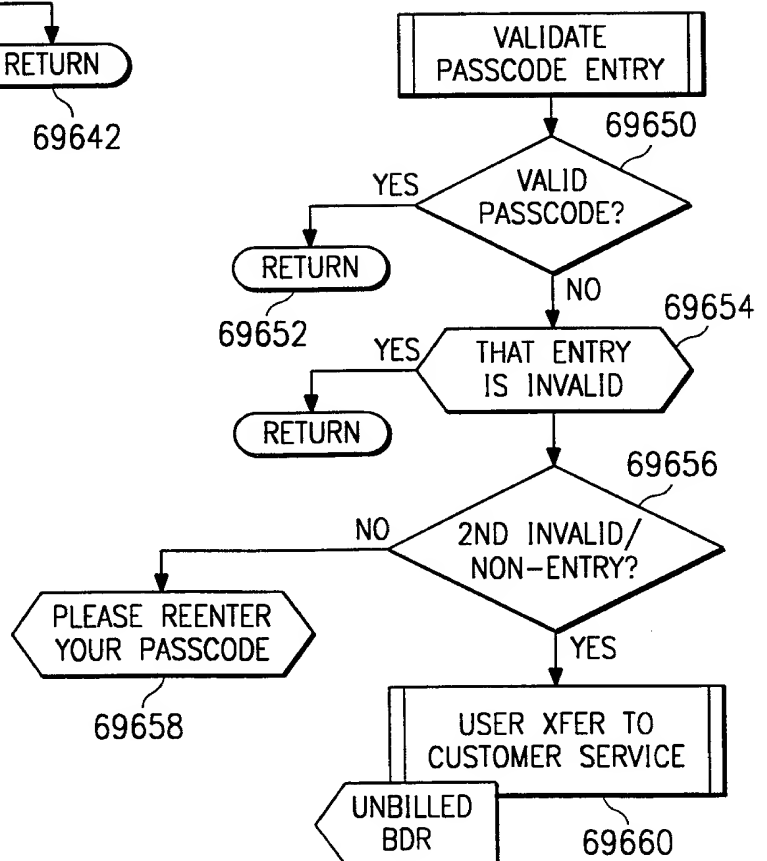
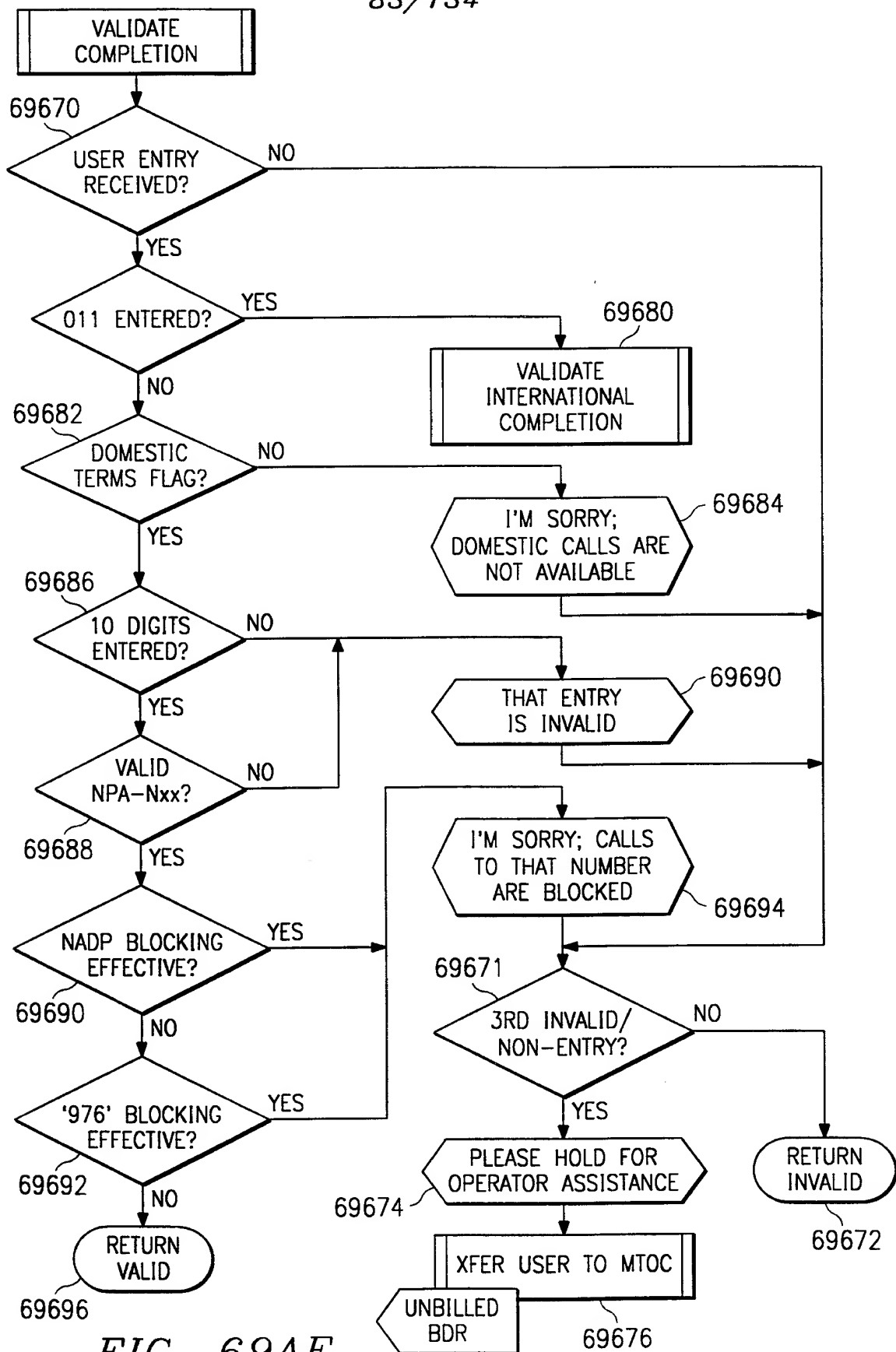


FIG. 69AD

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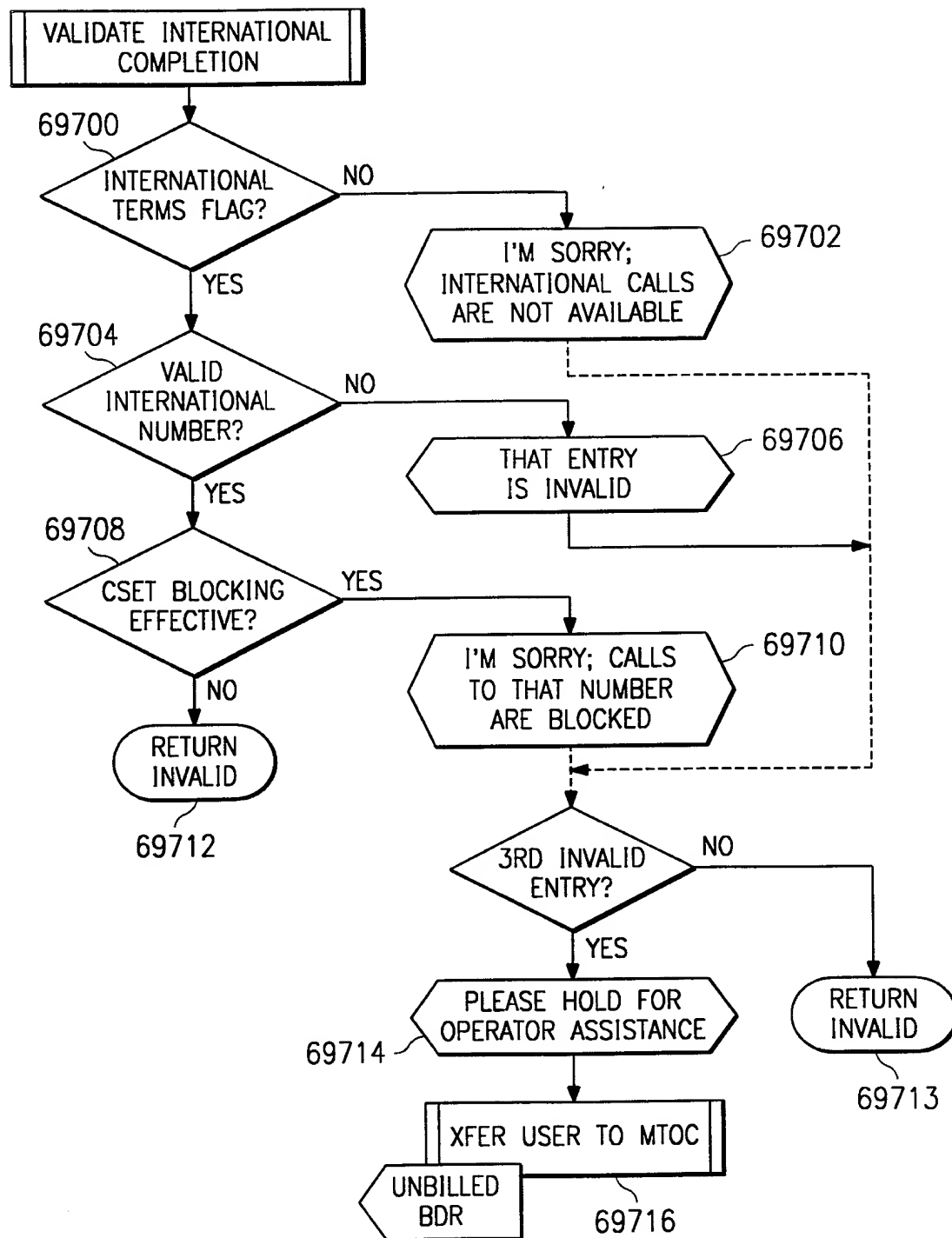
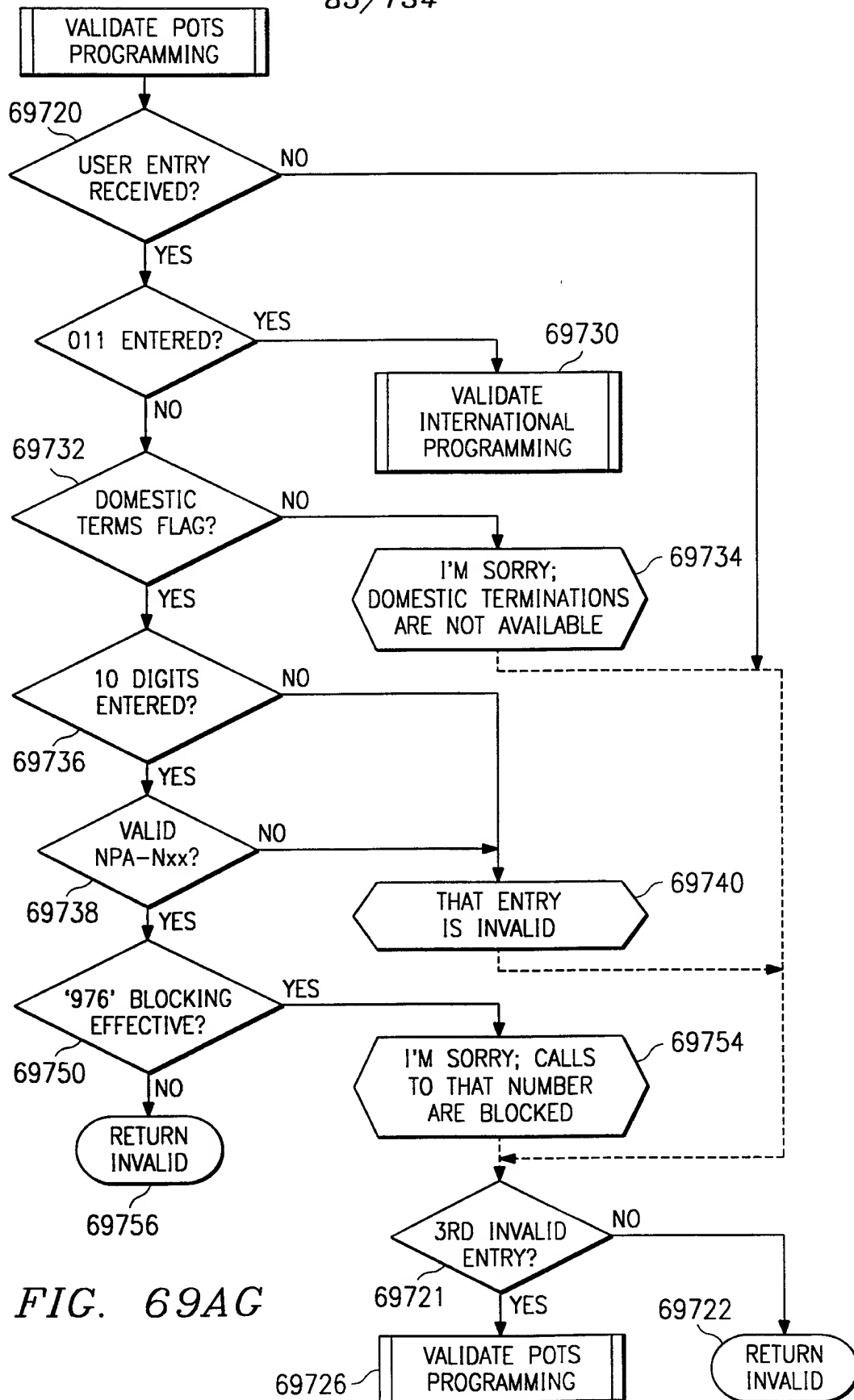


FIG. 69AF

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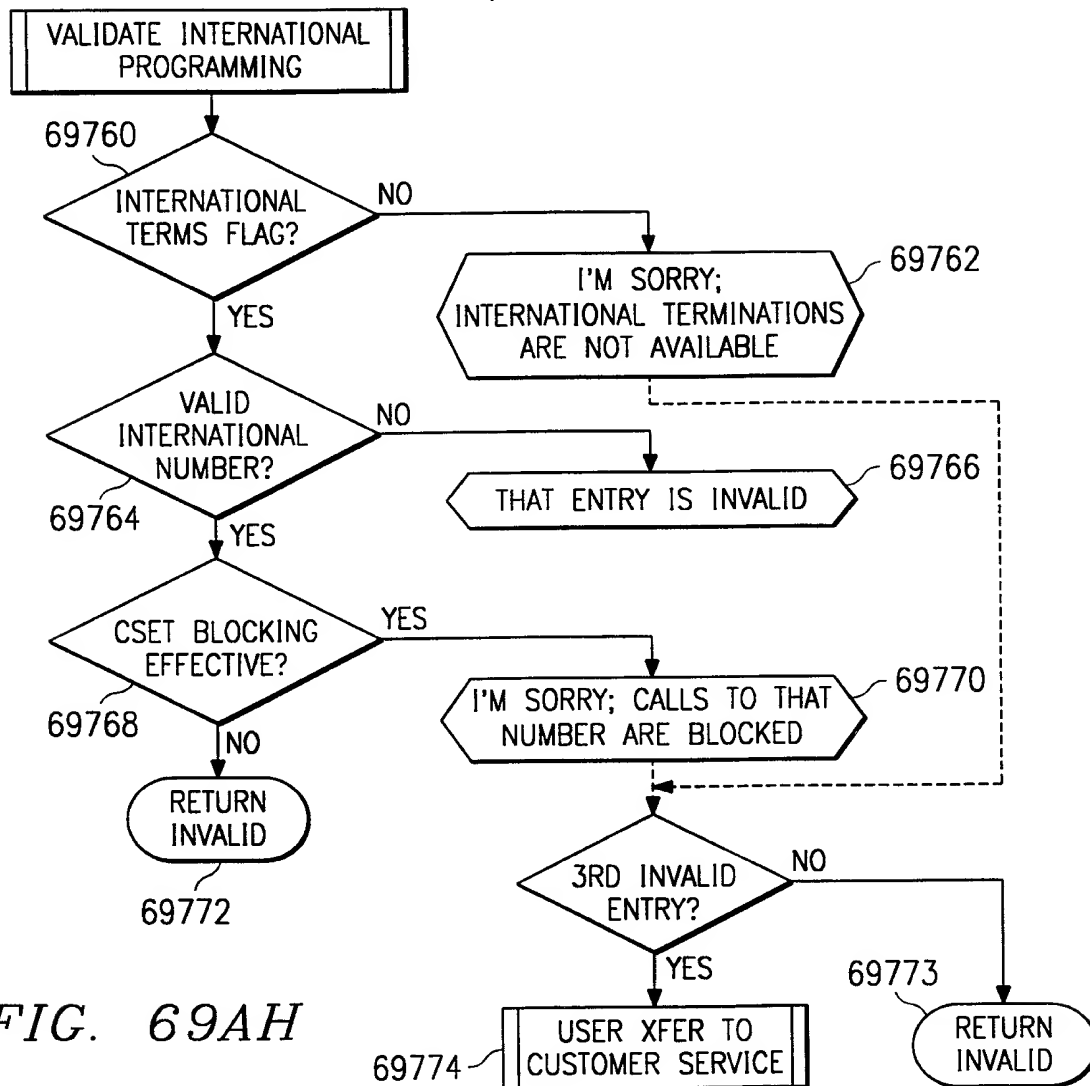


FIG. 69AH

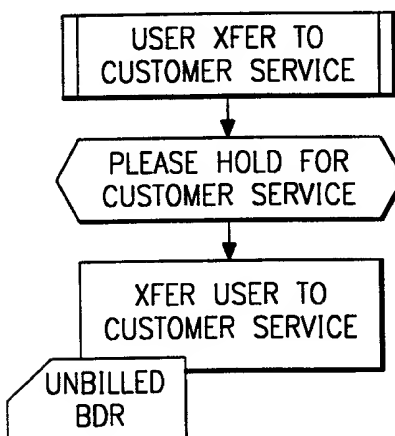


FIG. 69AI



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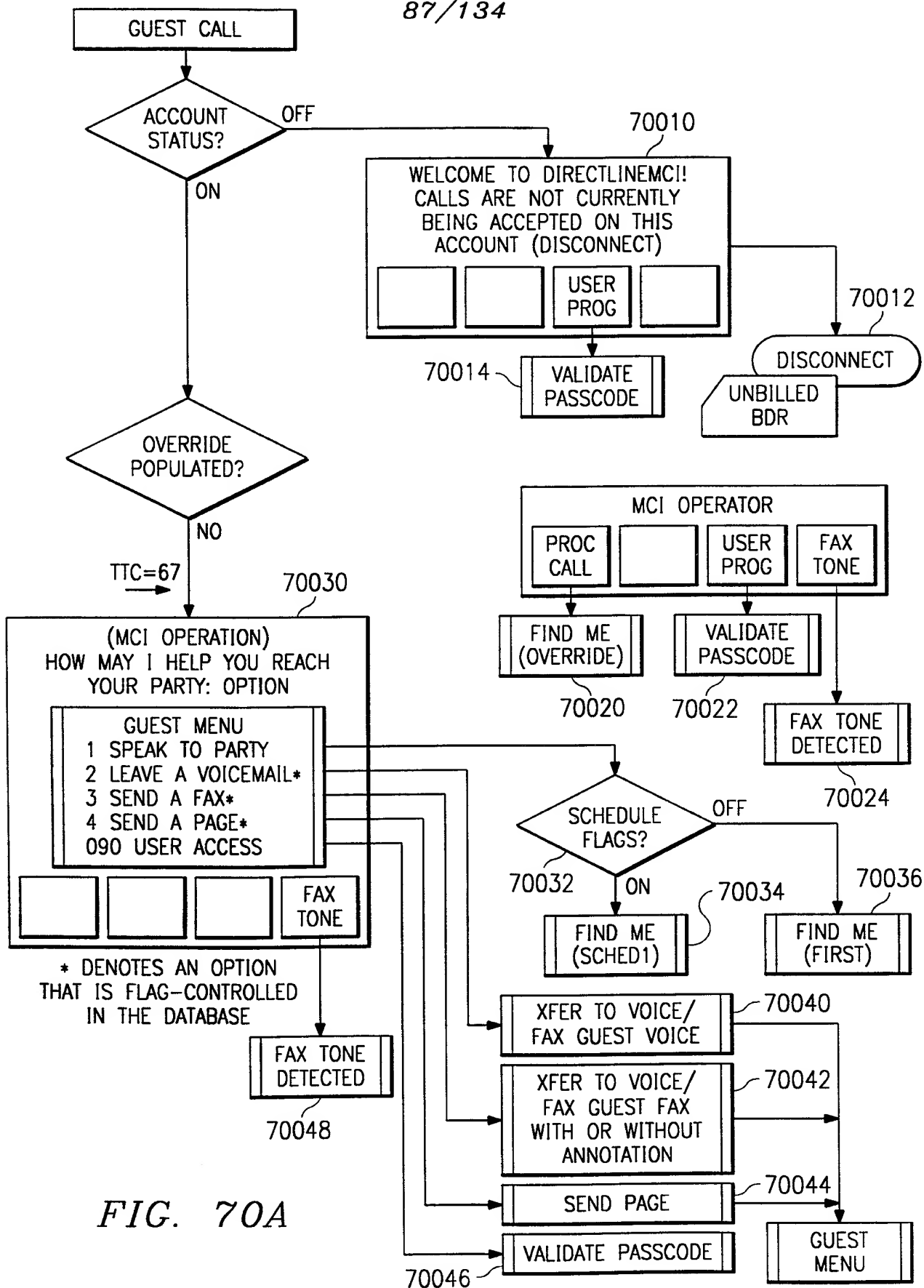


FIG. 70A

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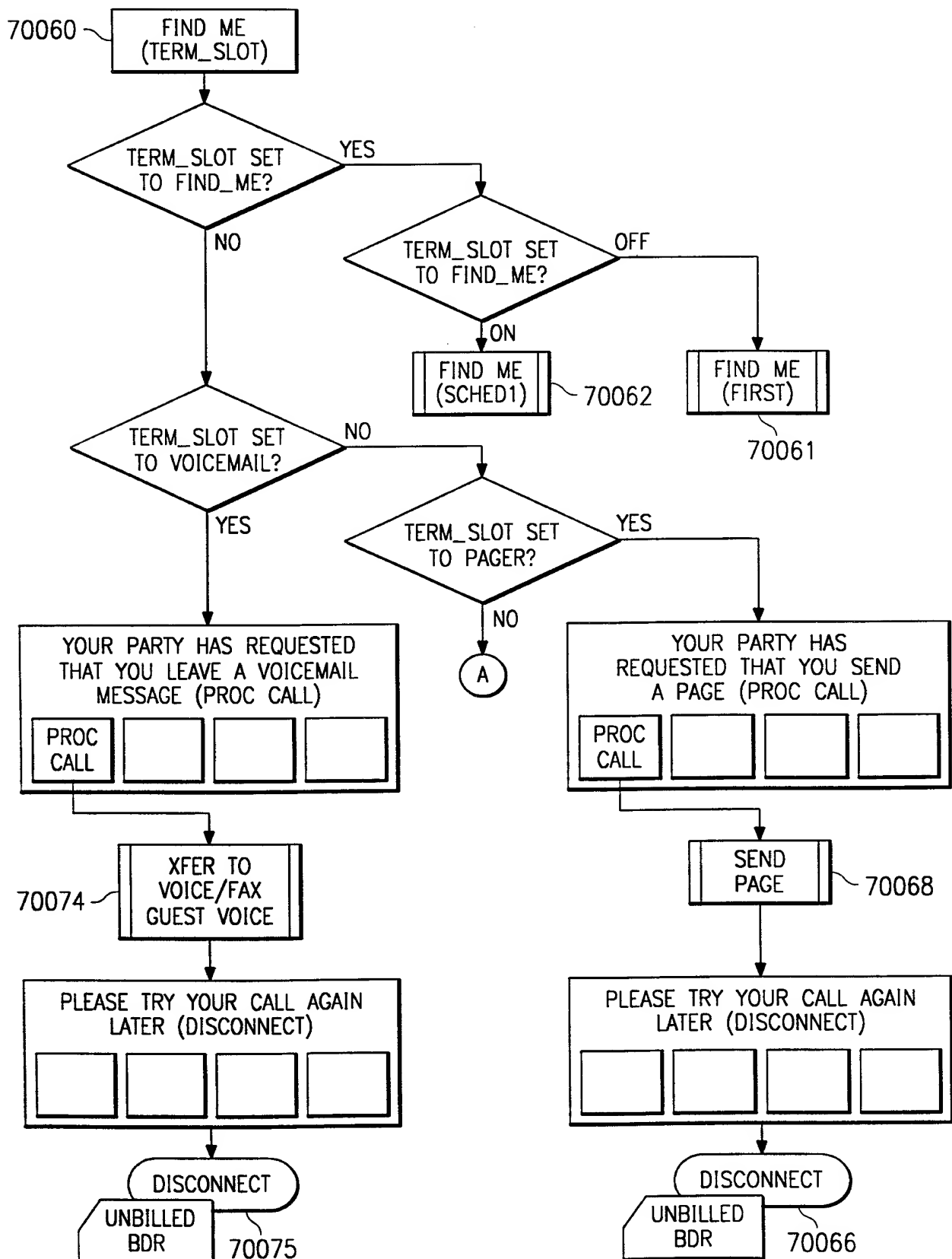
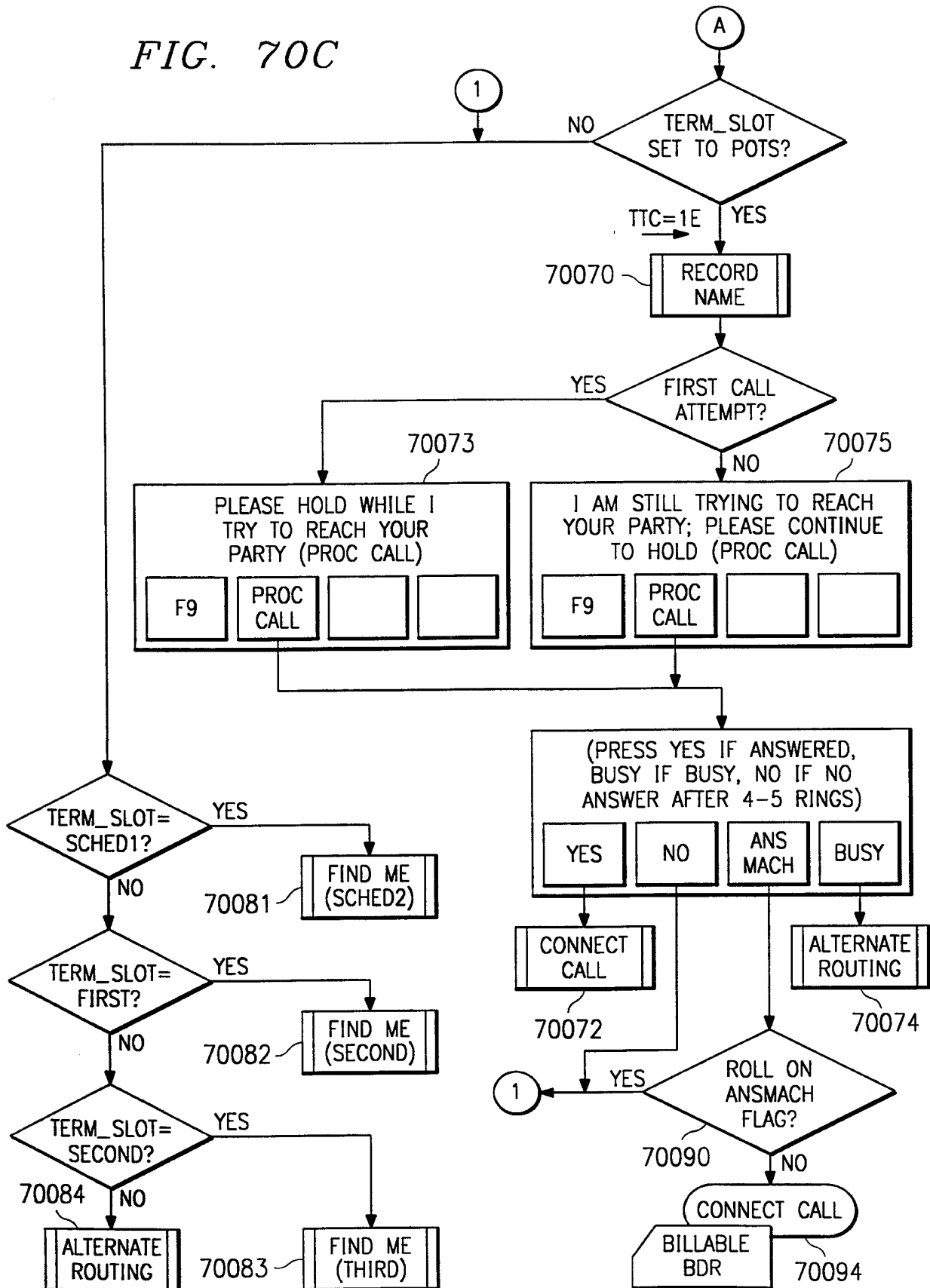


FIG. 70B

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FIG. 70C



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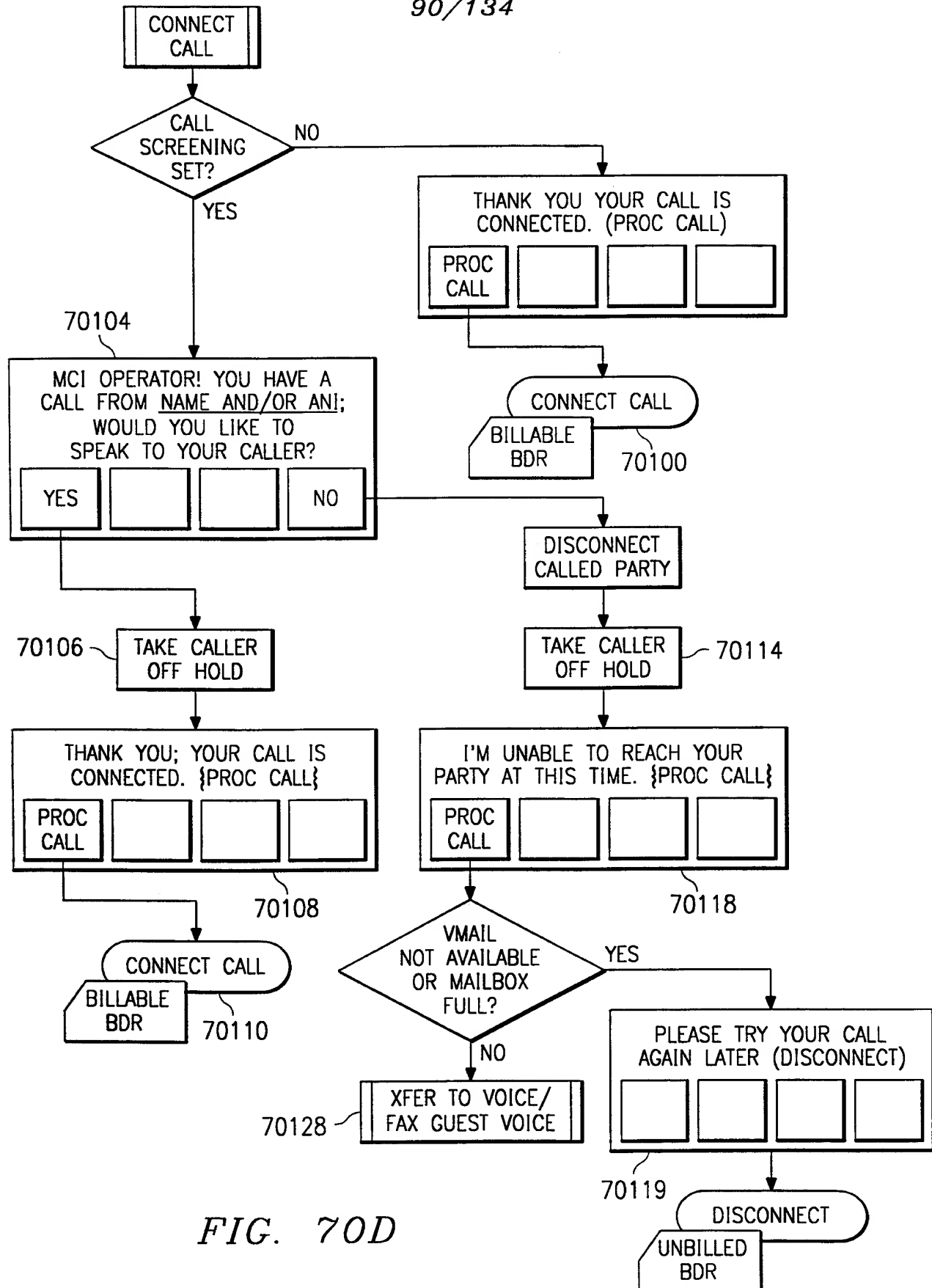


FIG. 70D

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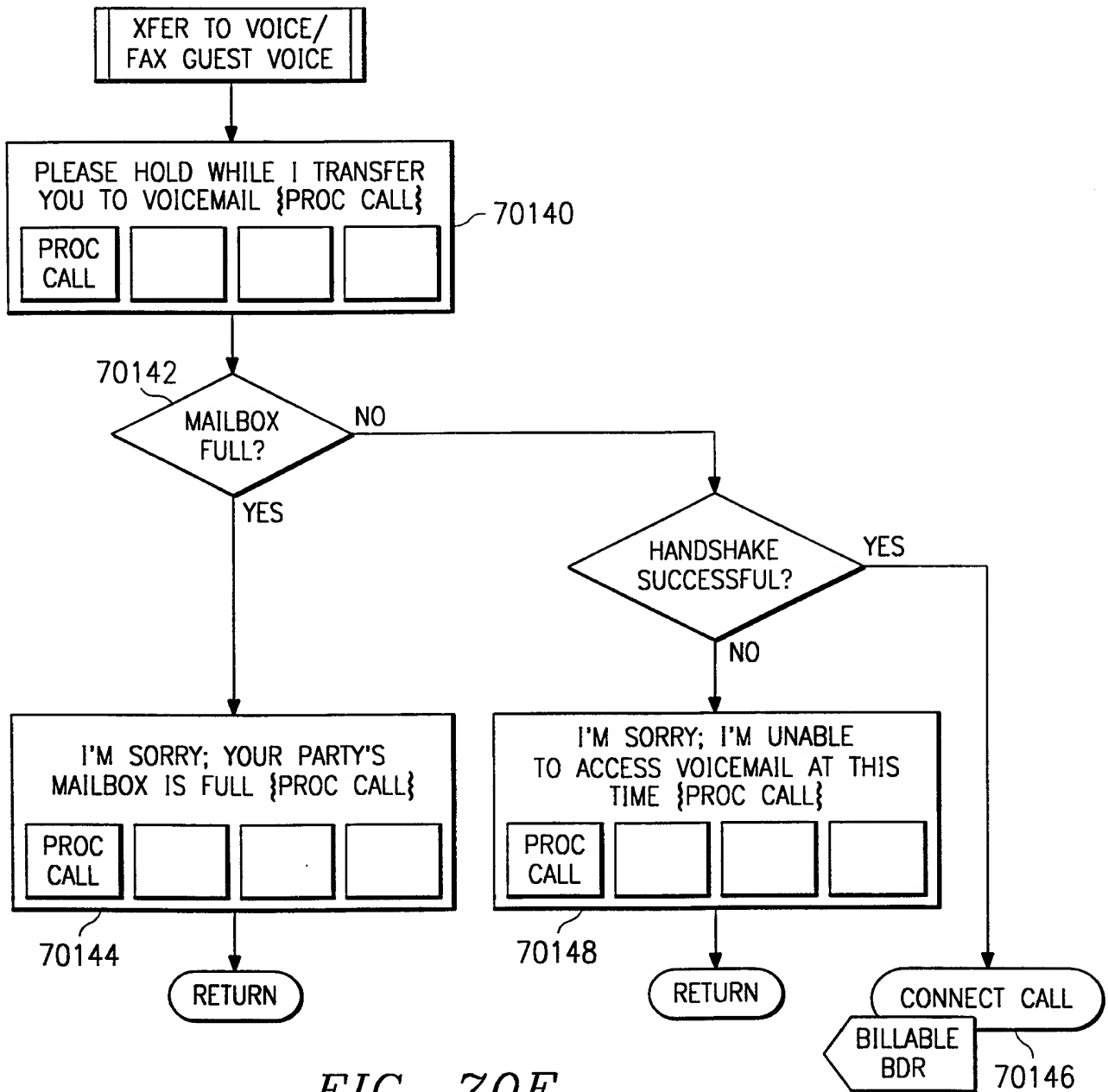


FIG. 70E

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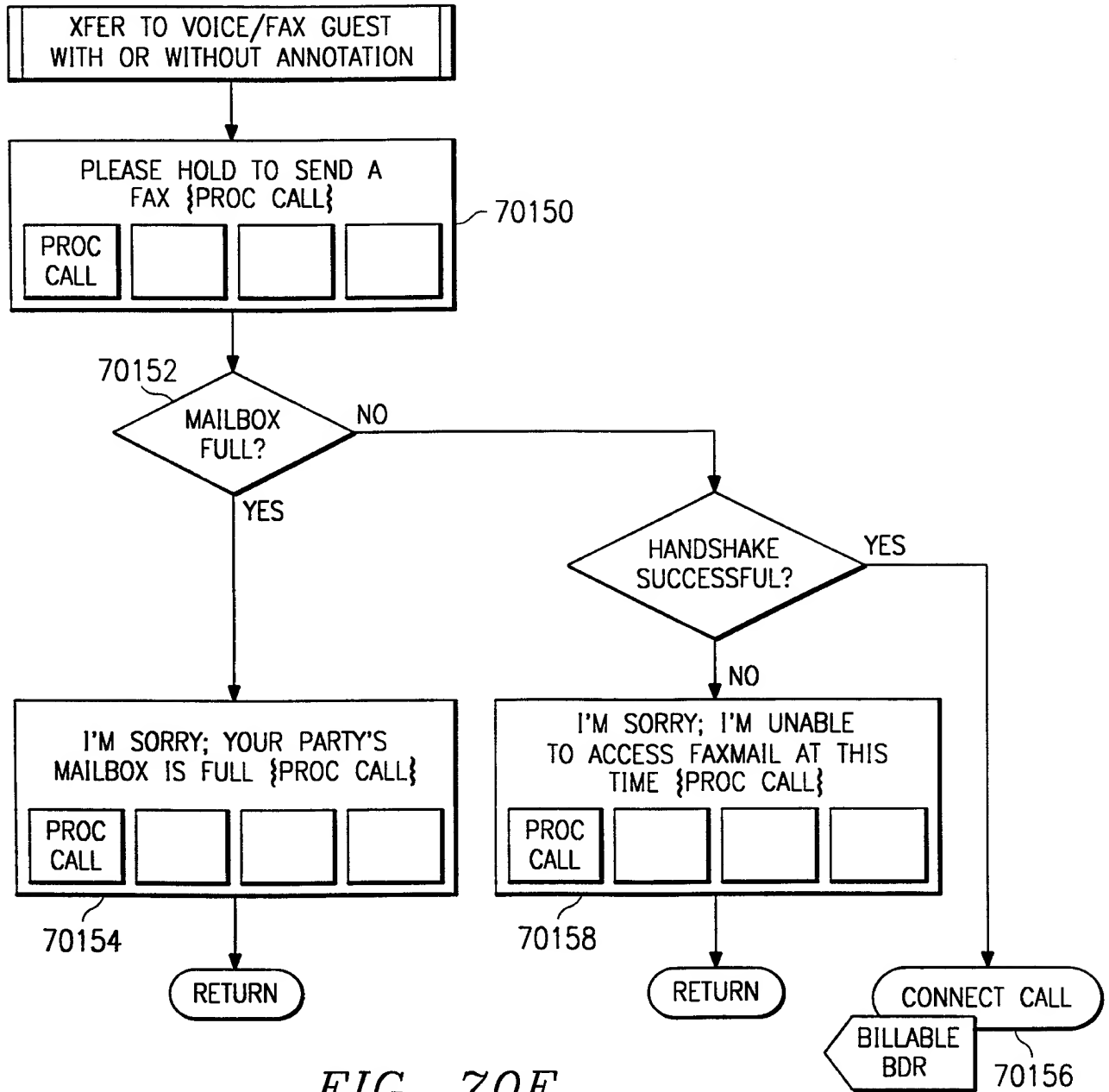


FIG. 70F

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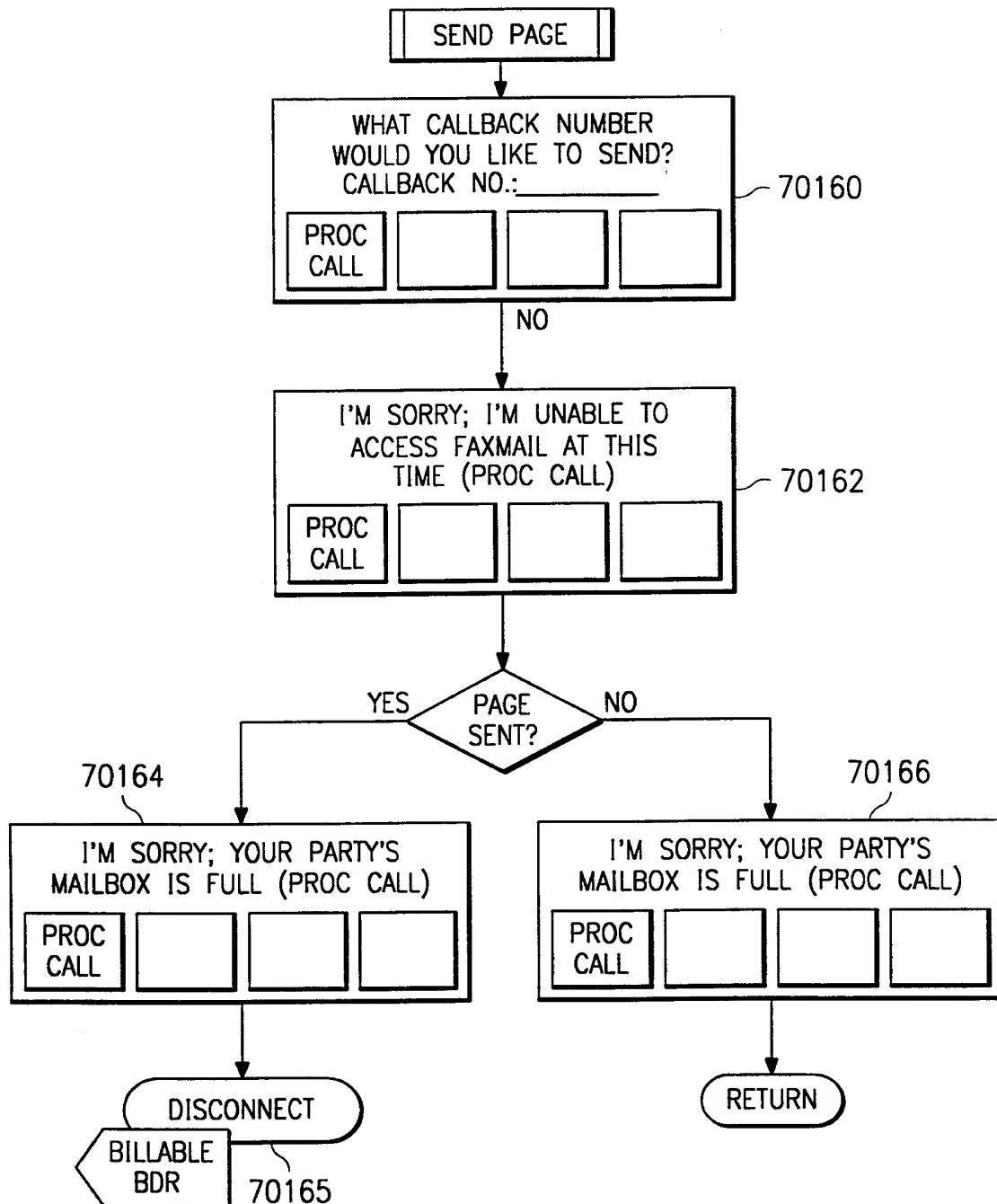


FIG. 70G

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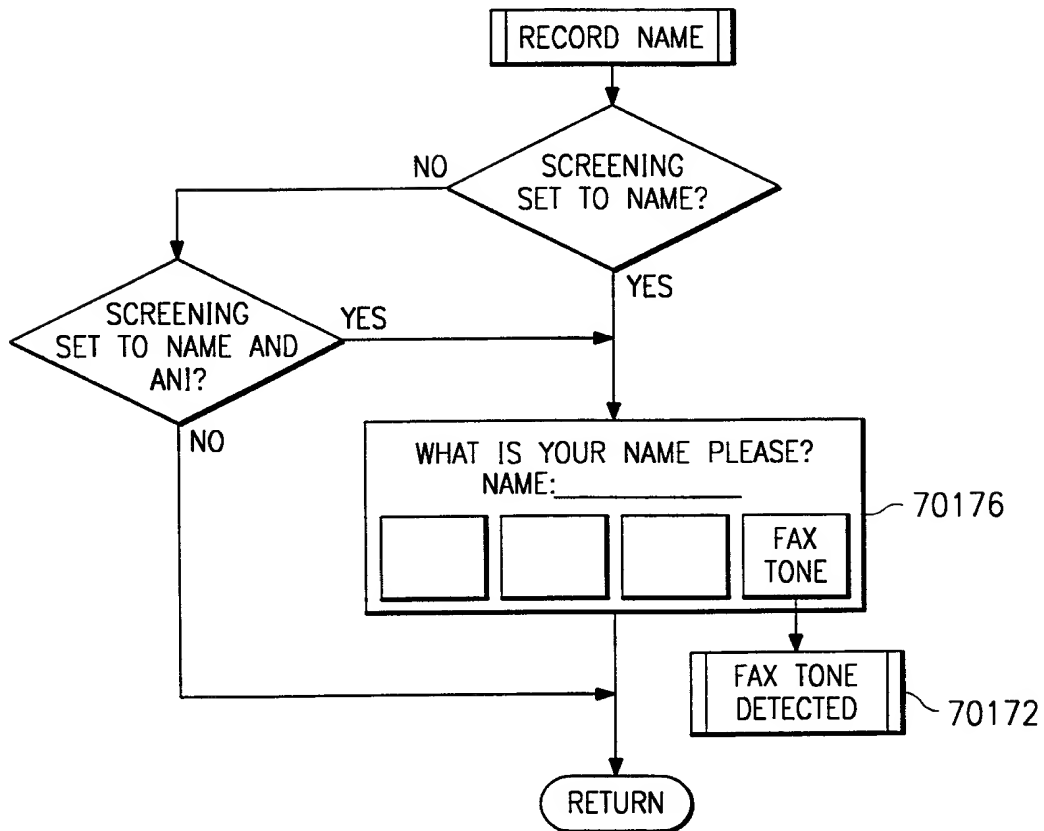


FIG. 70H

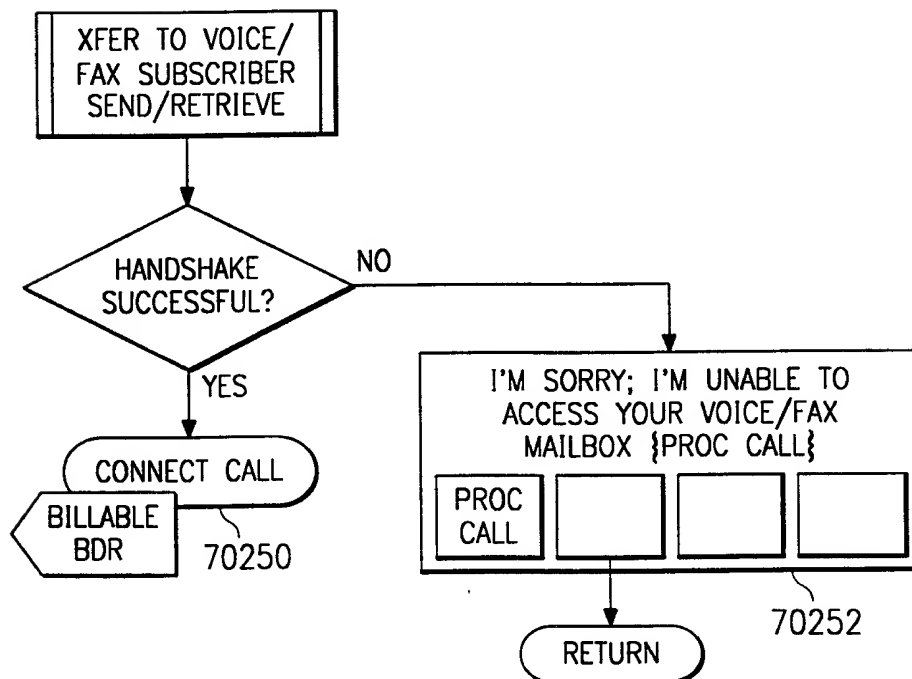


FIG. 70M



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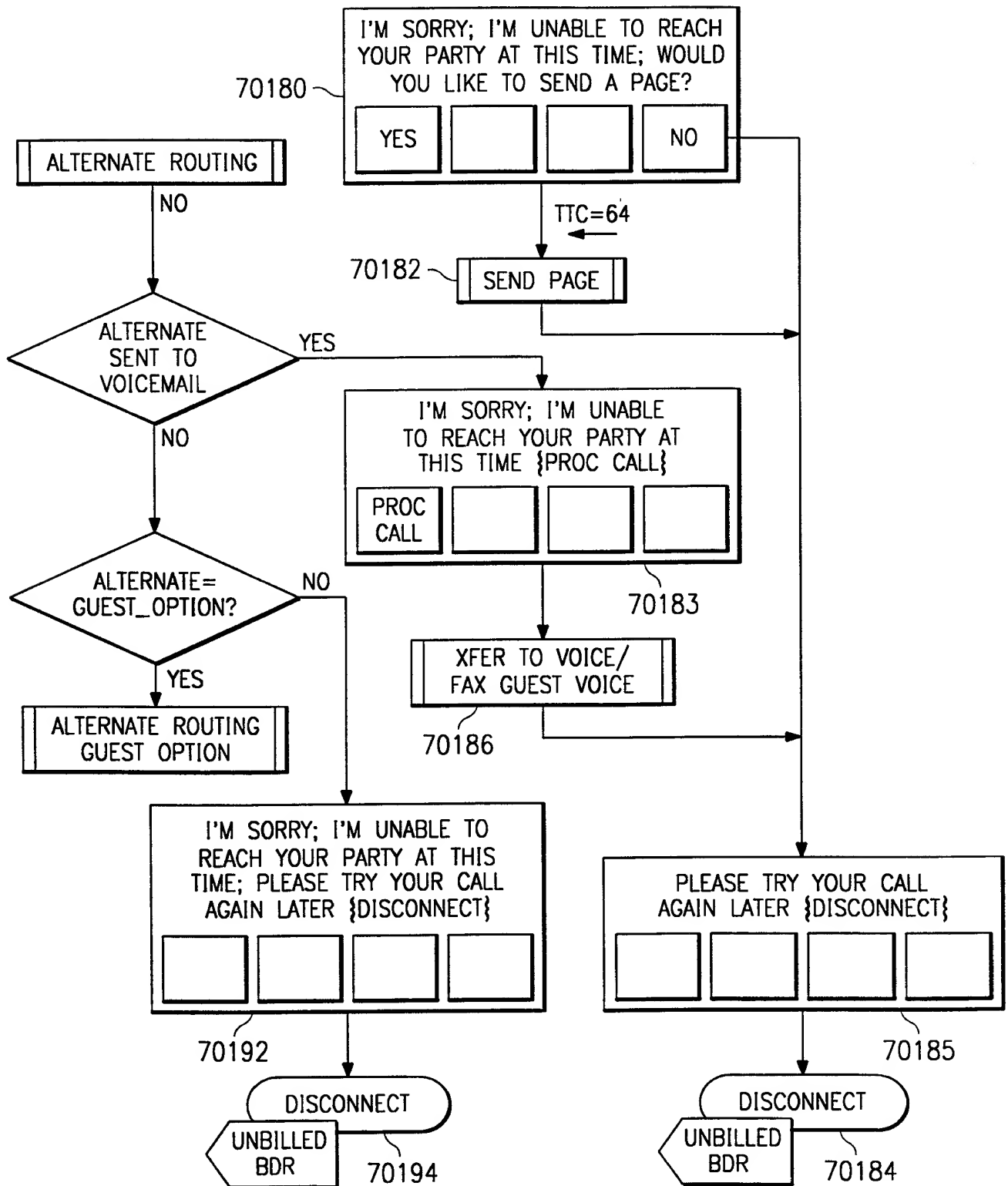


FIG. 701

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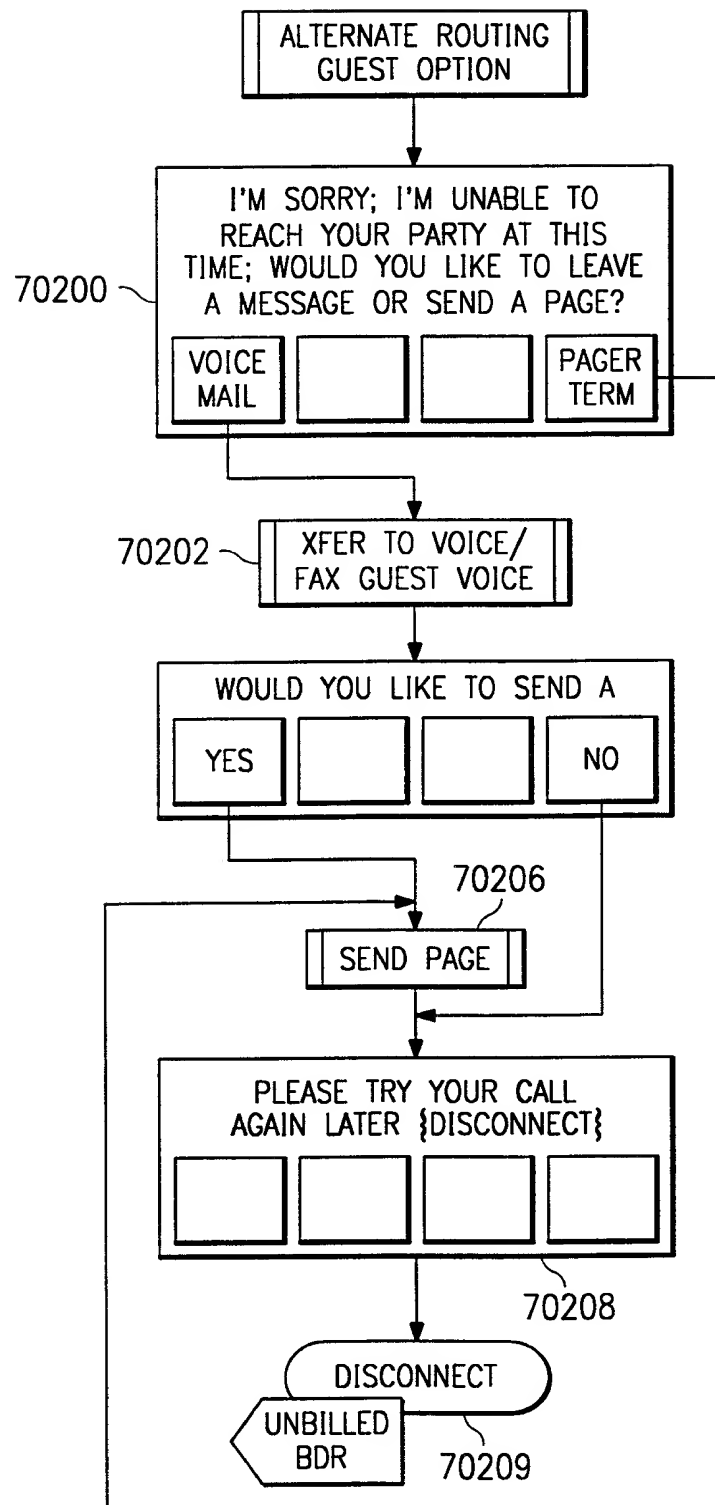


FIG. 70J

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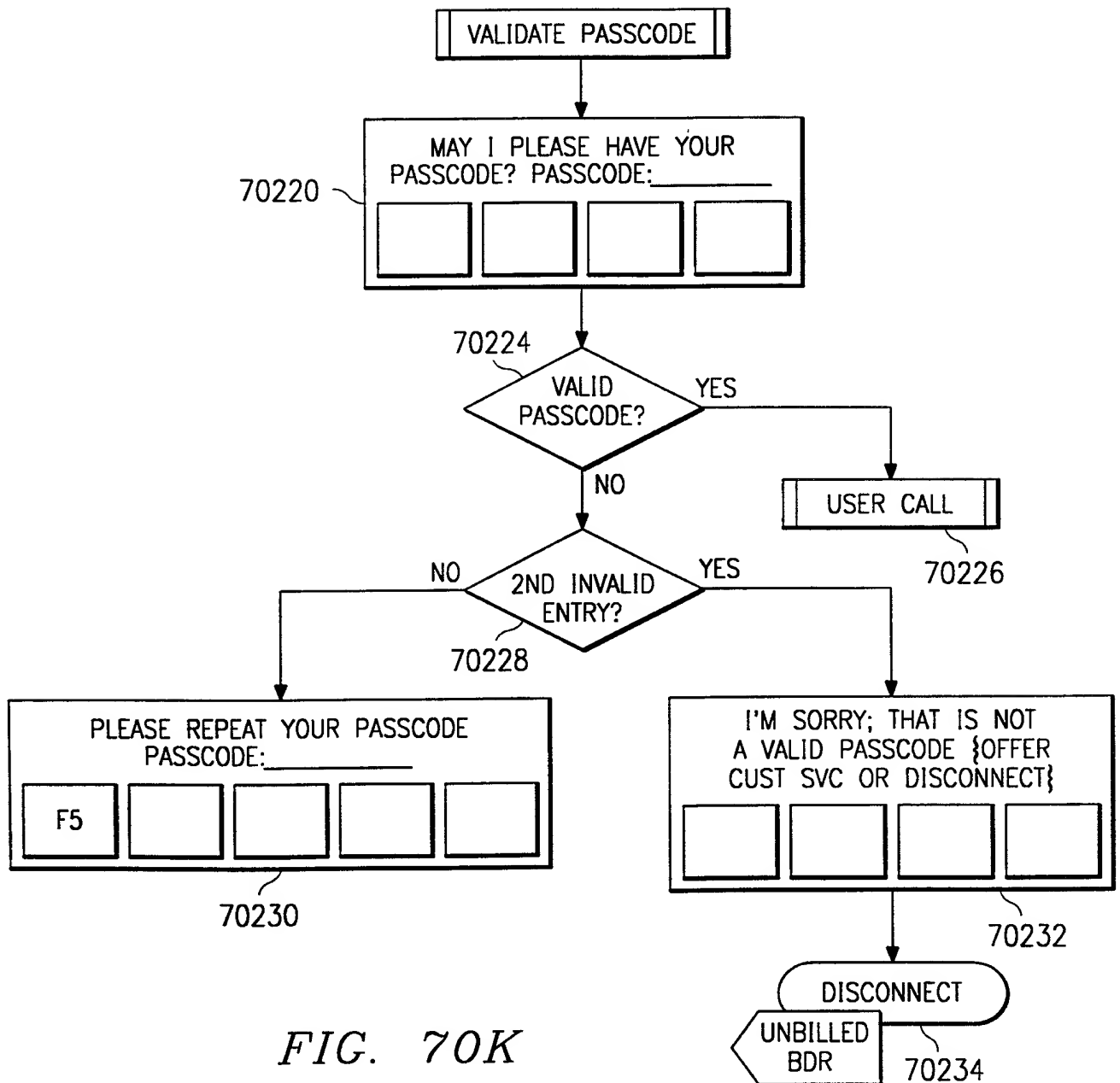


FIG. 70K

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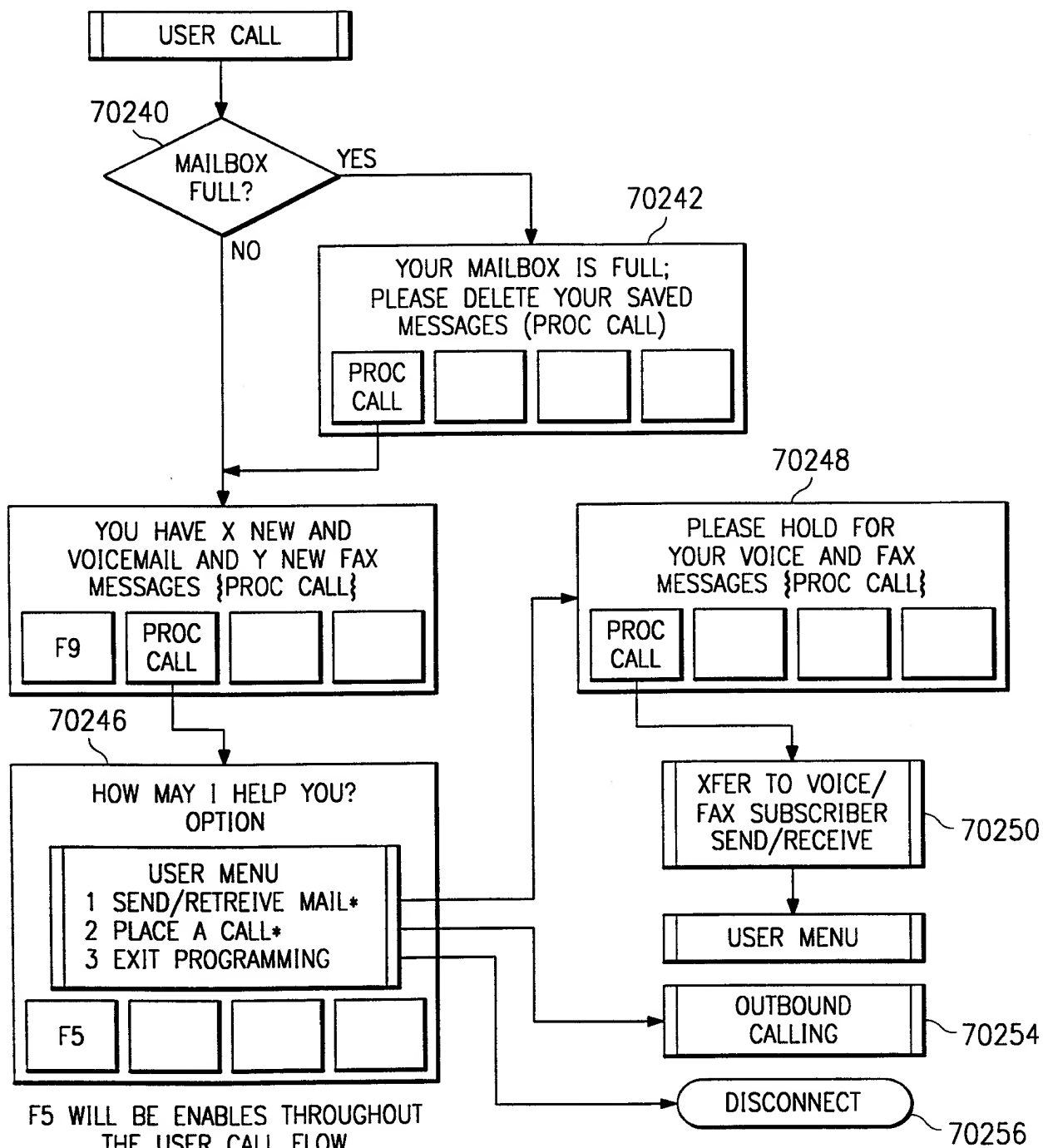


FIG. 70L

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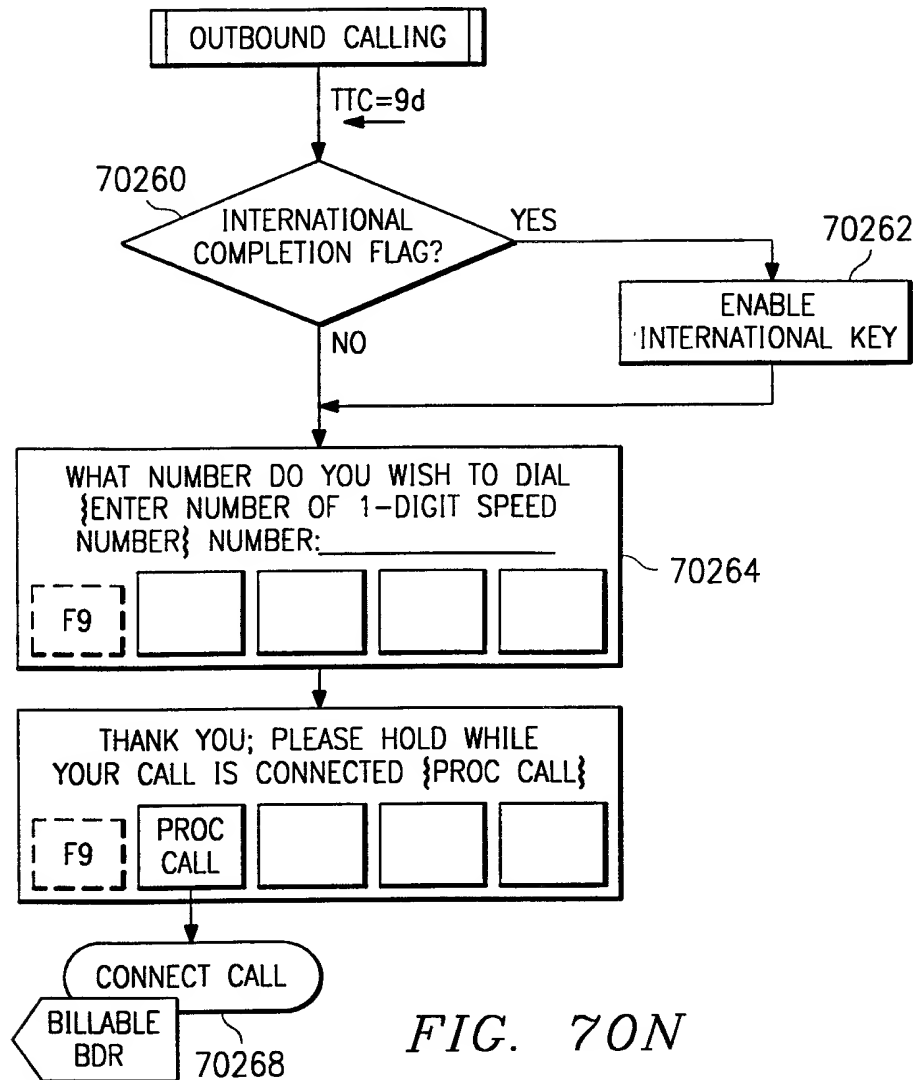


FIG. 70N

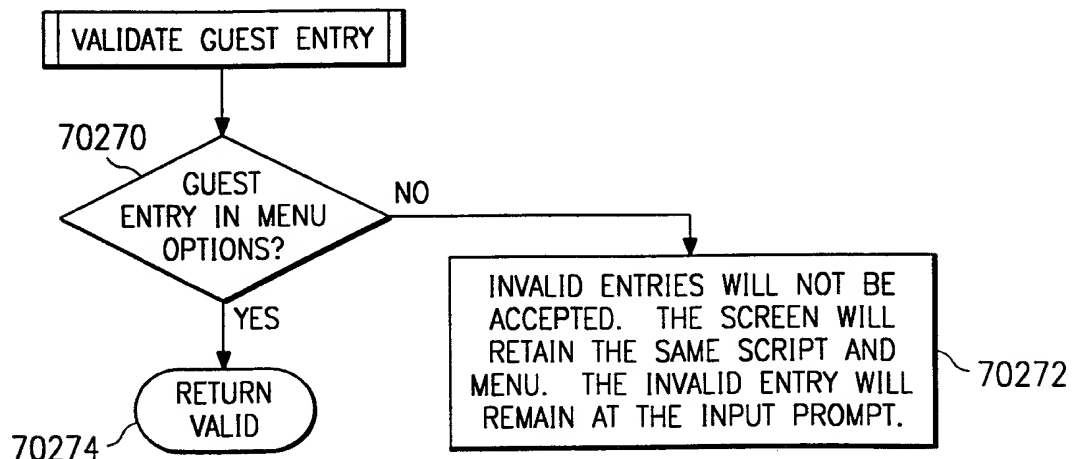


FIG. 700

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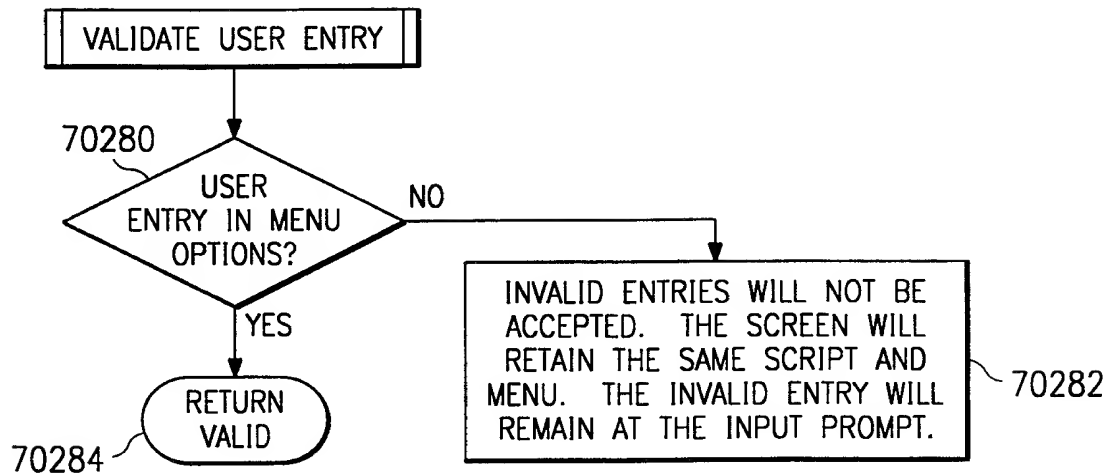


FIG. 70P

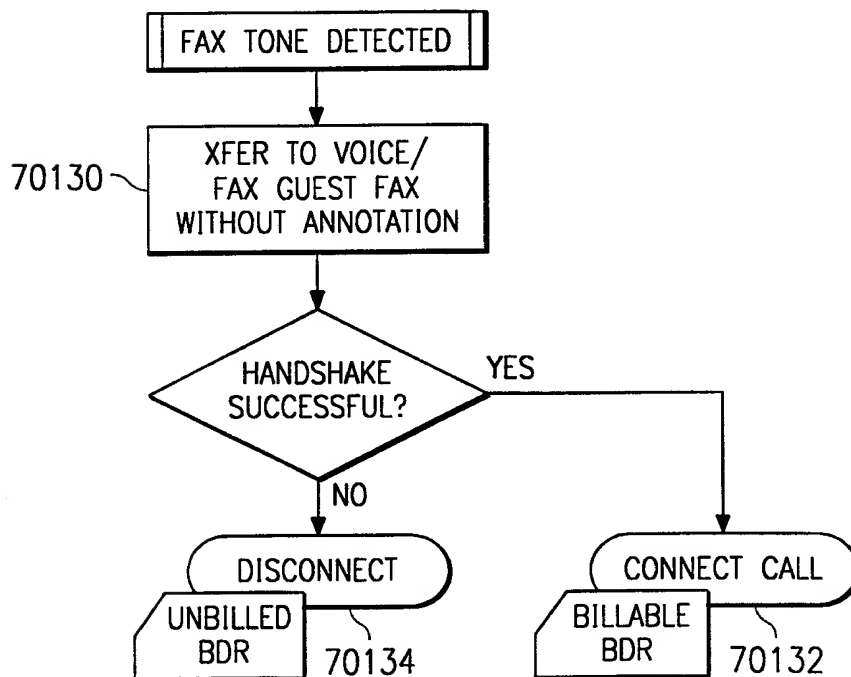


FIG. 70S

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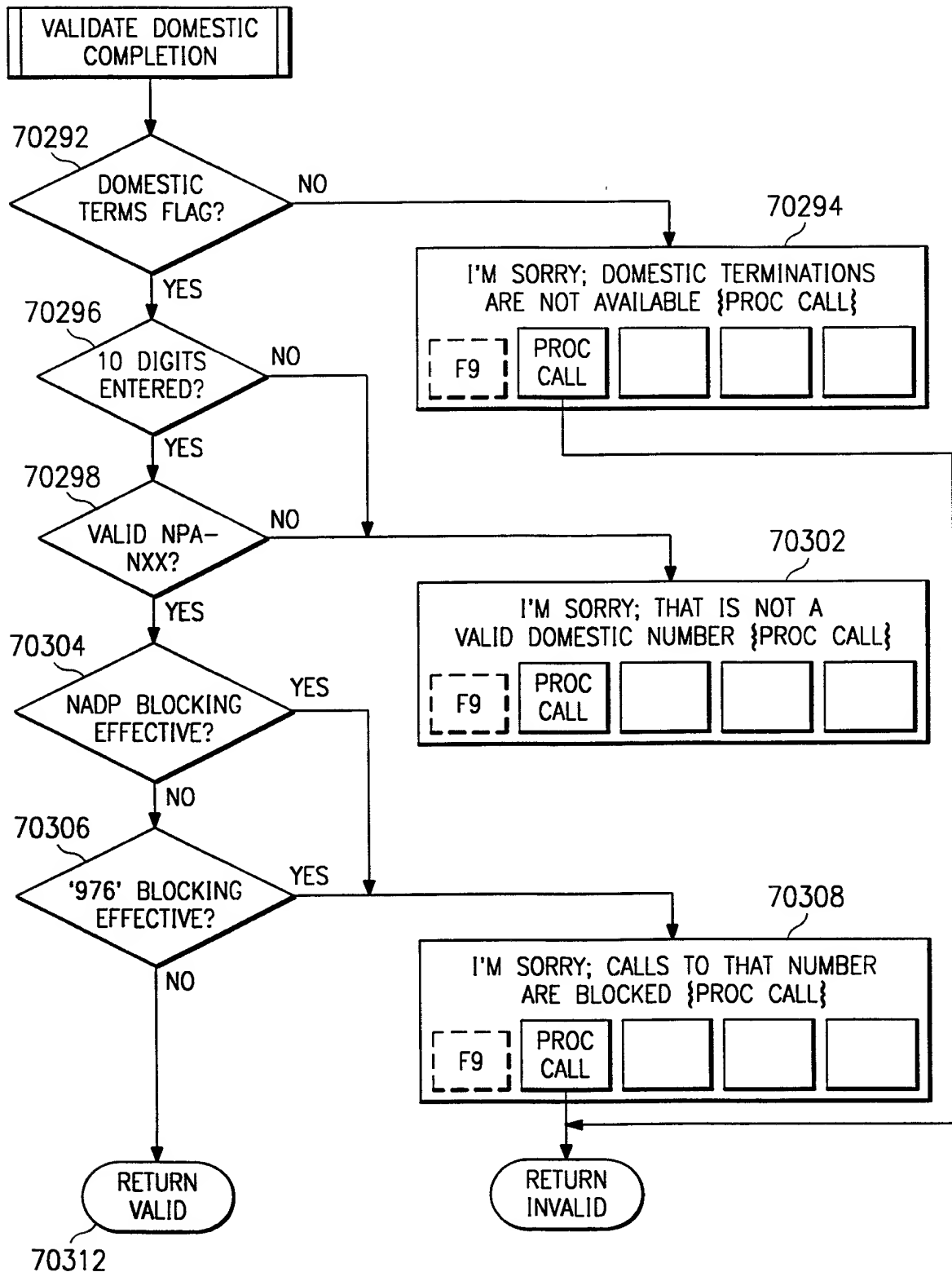


FIG. 70Q

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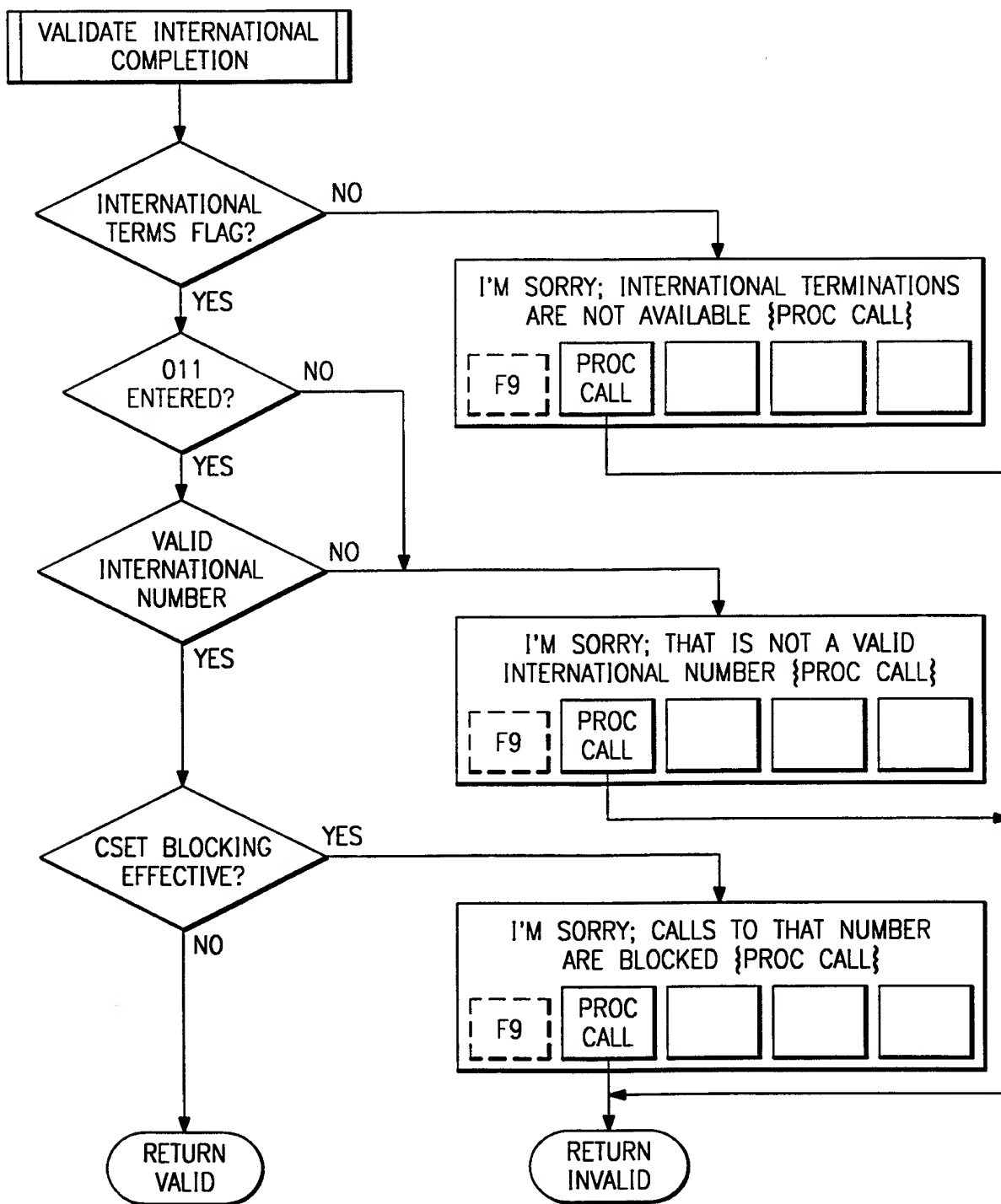


FIG. 70R



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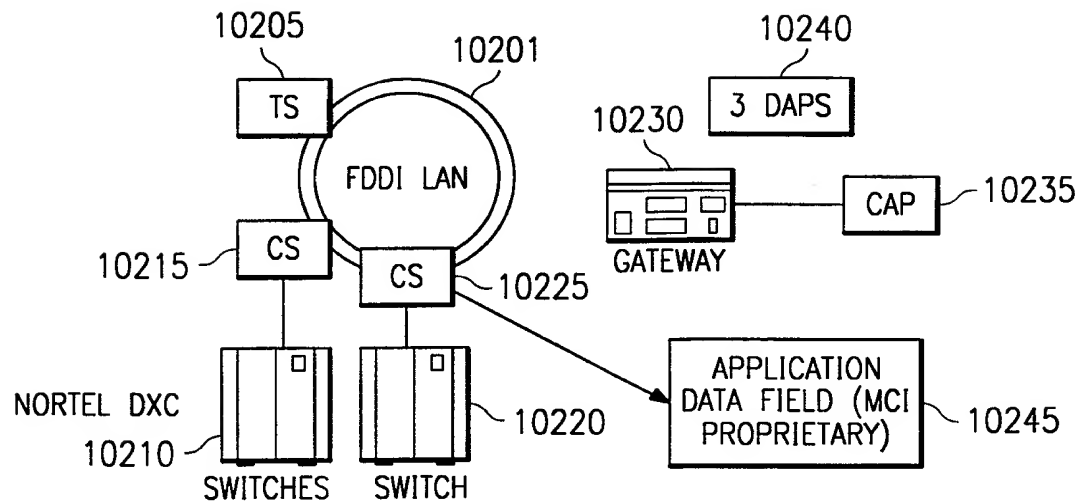


FIG. 71

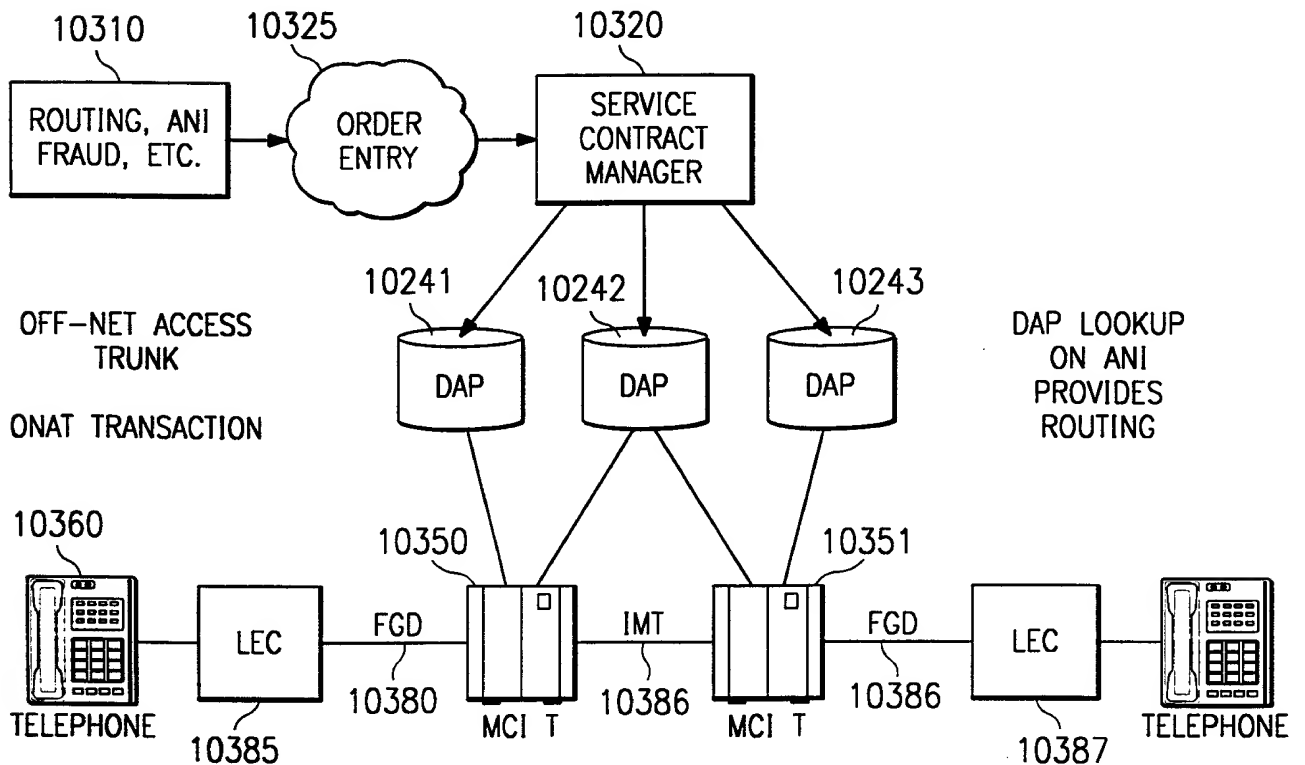


FIG. 72

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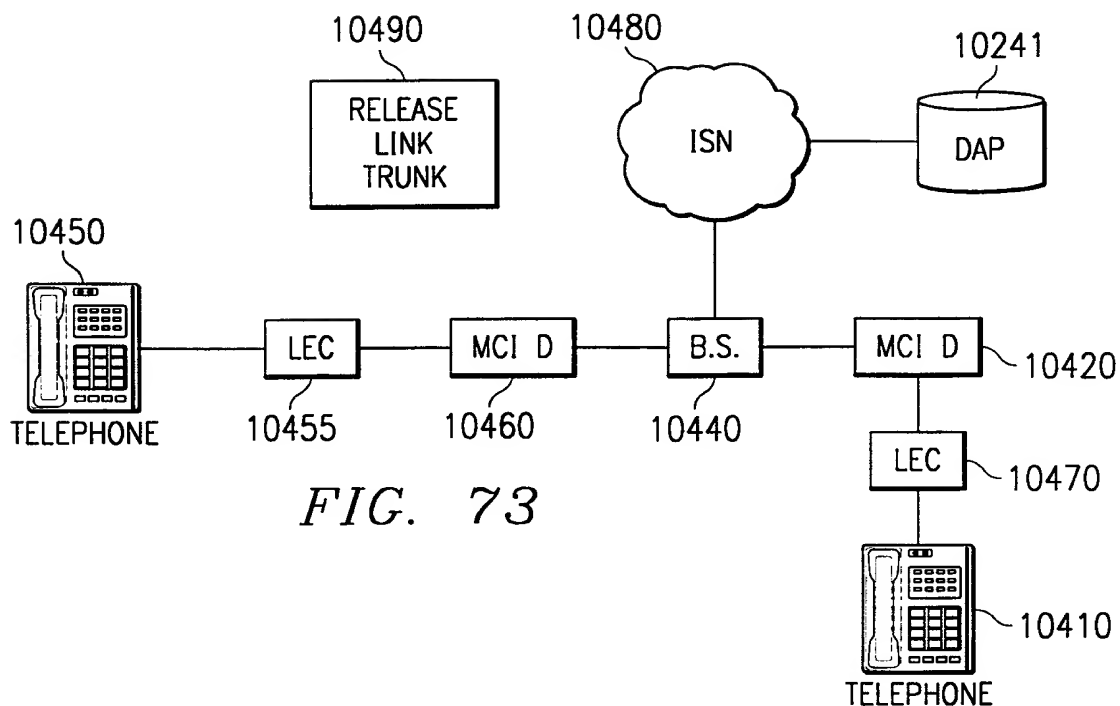


FIG. 73

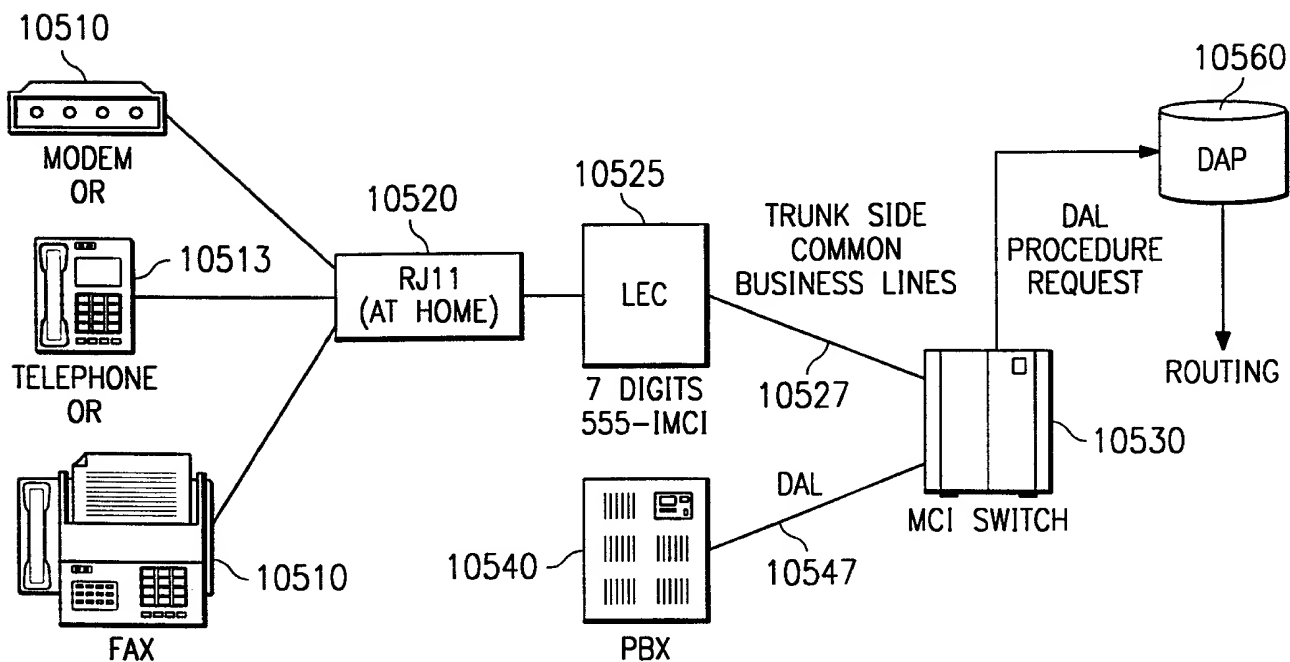
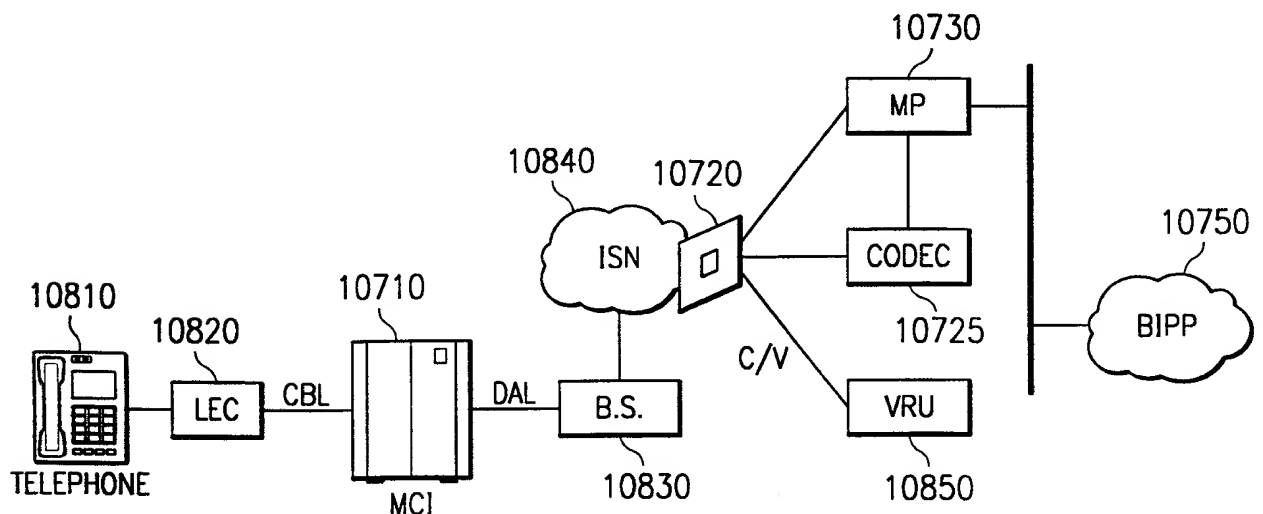
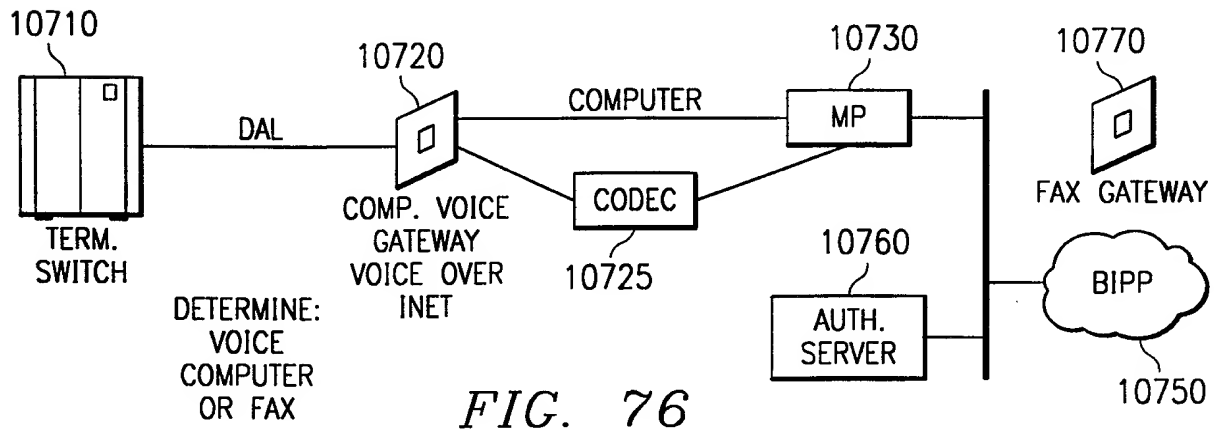
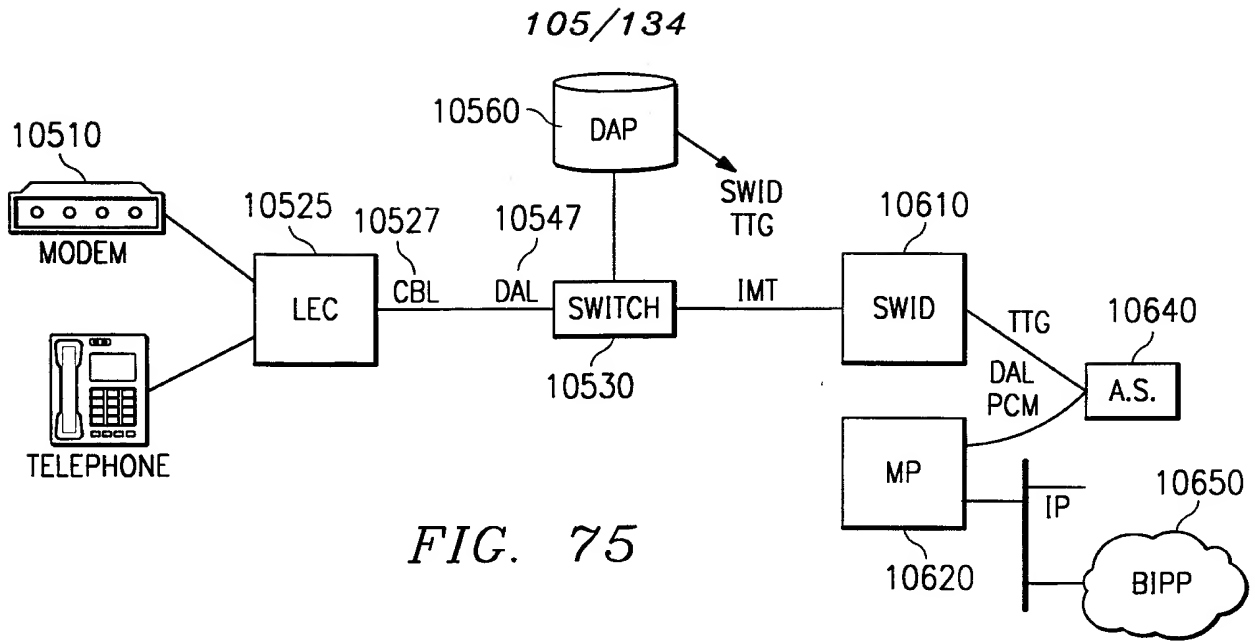


FIG. 74



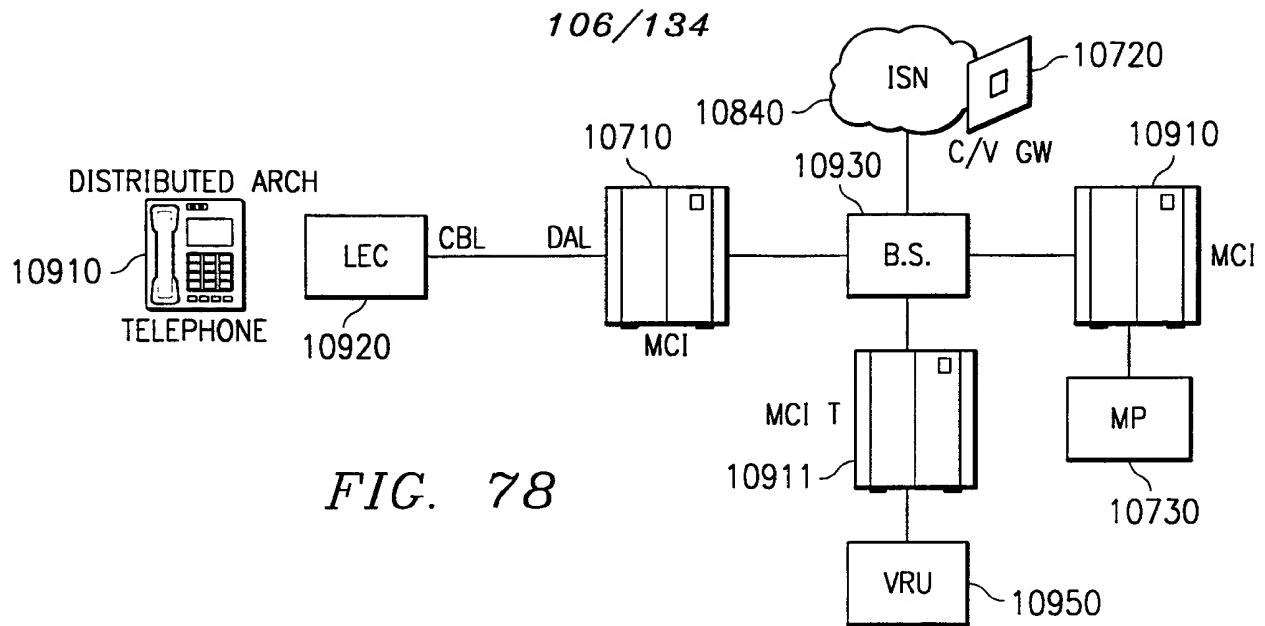


FIG. 78

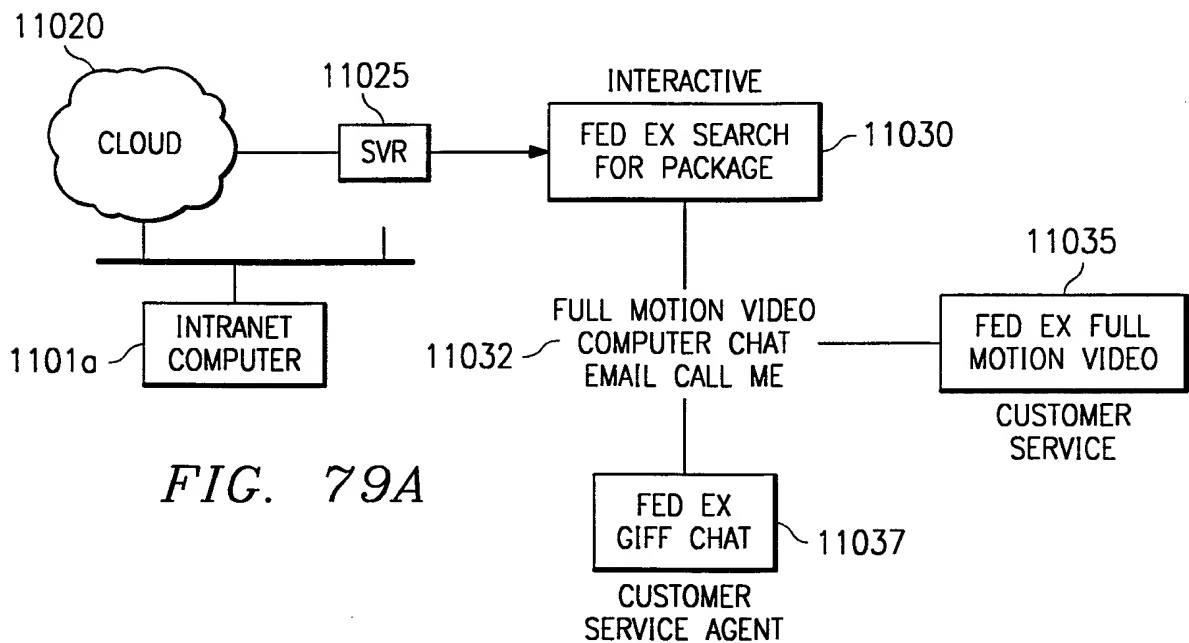


FIG. 79A

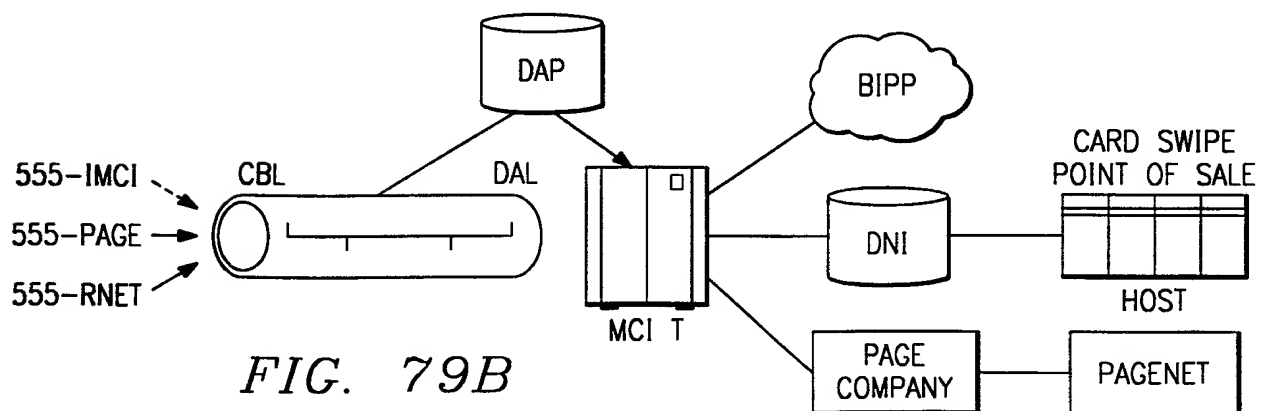
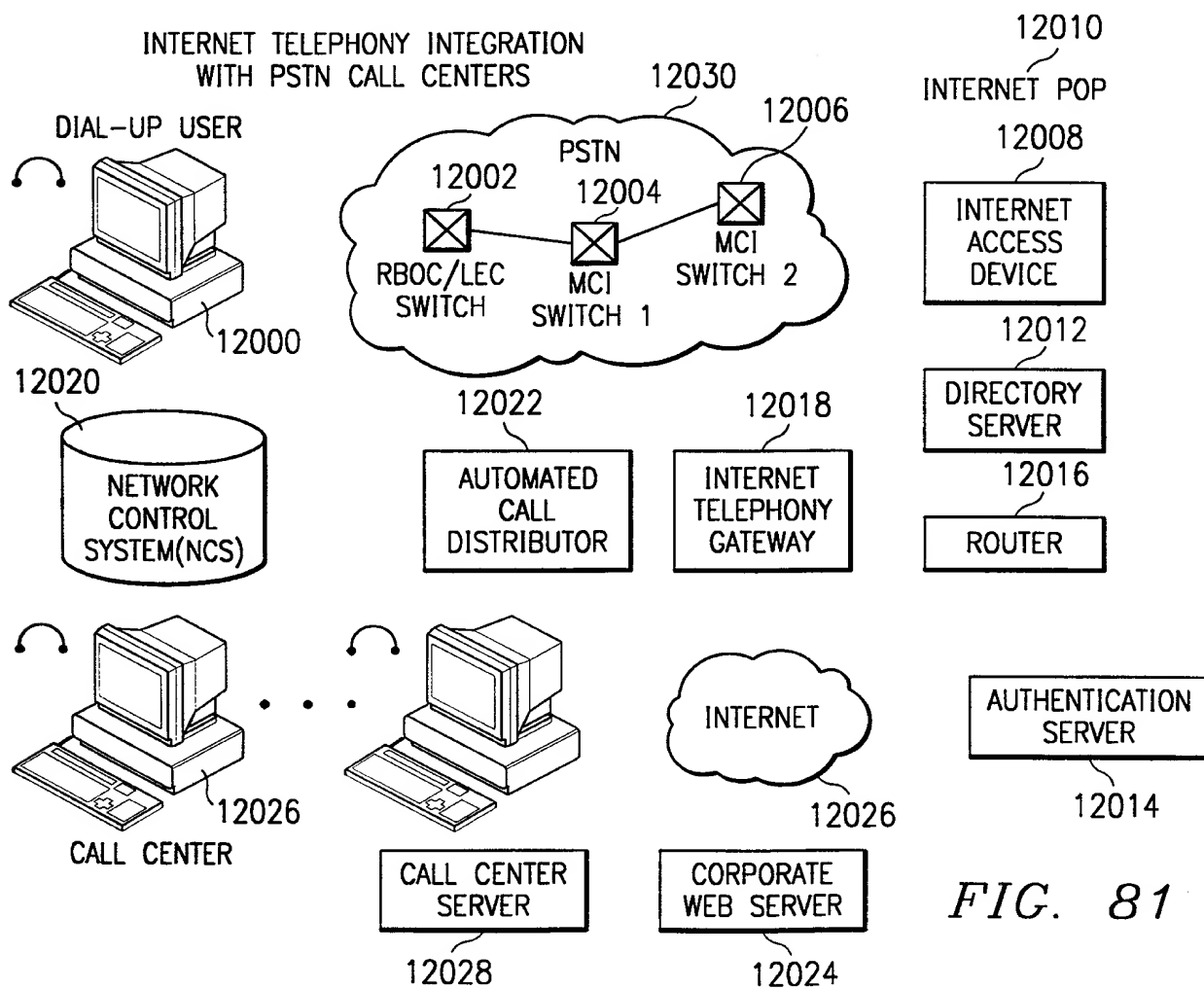
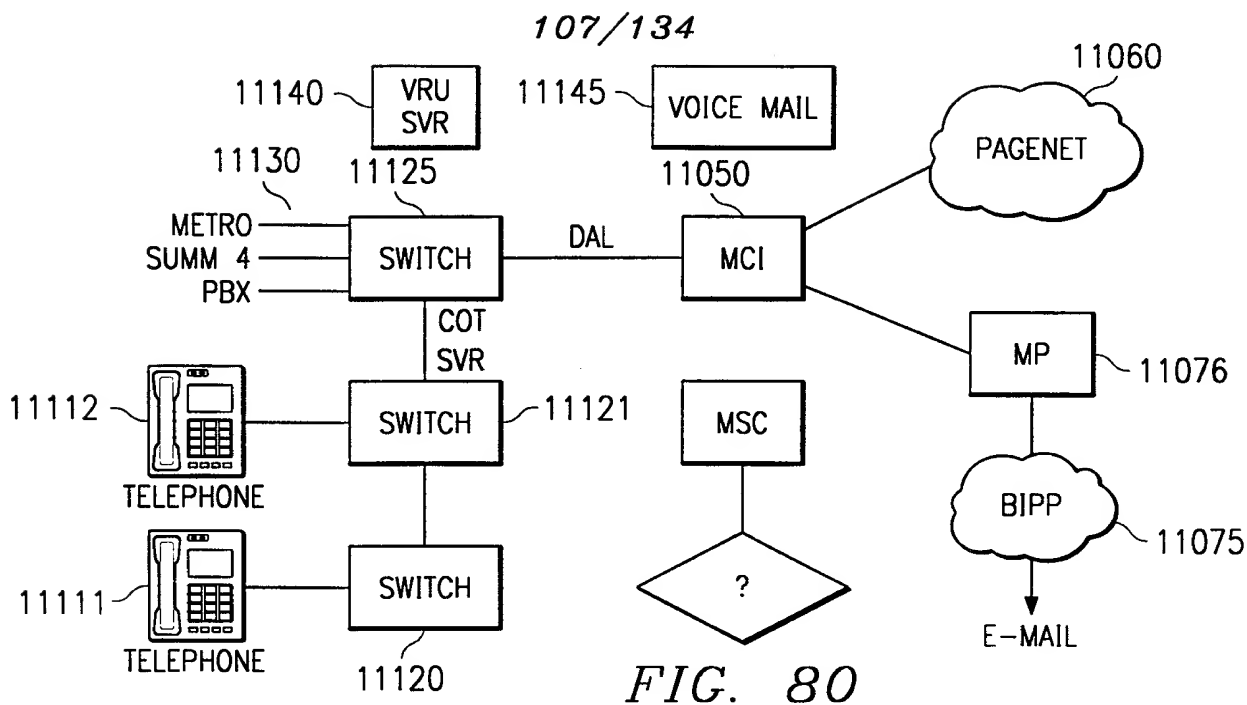


FIG. 79B



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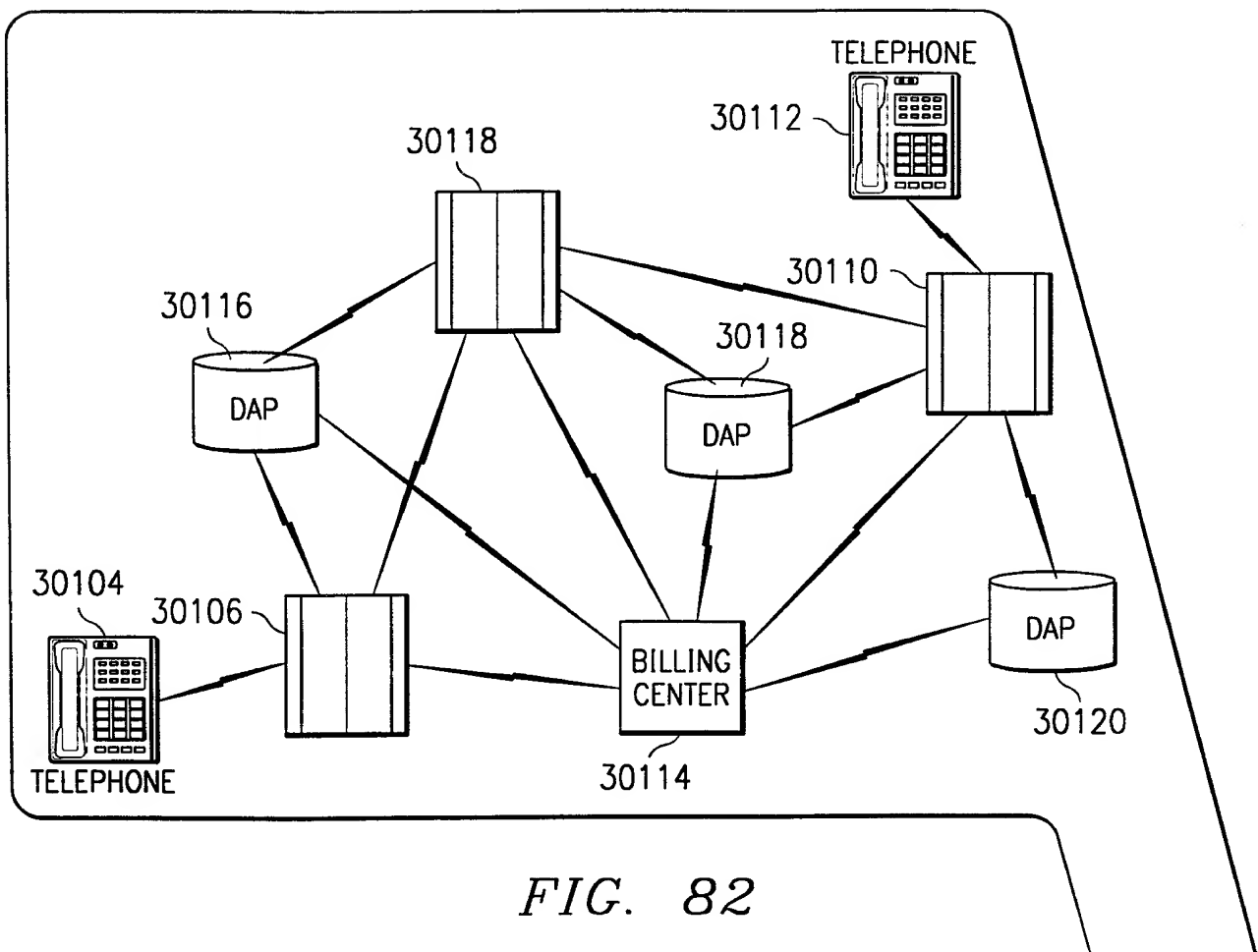


FIG. 82

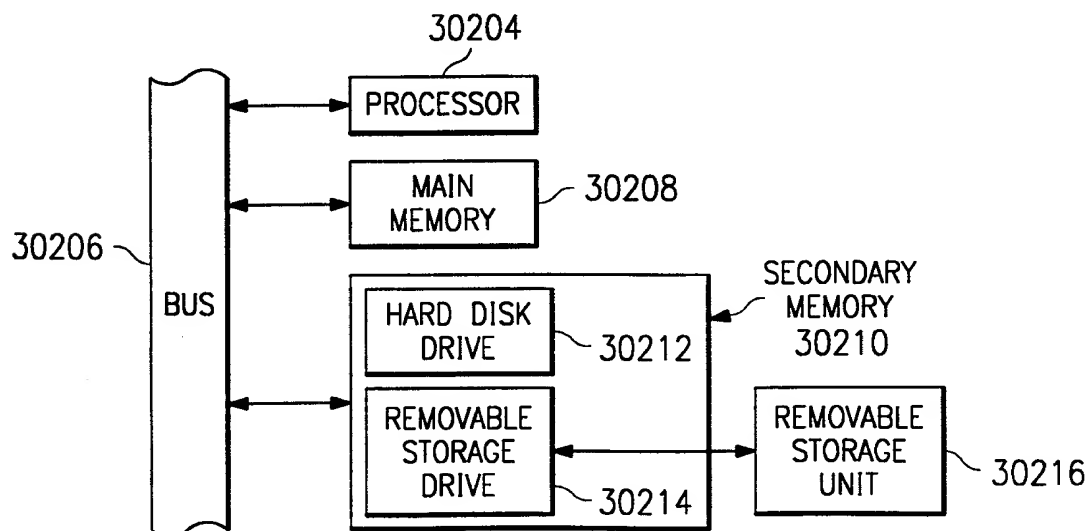


FIG. 83

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MSB																LSB			
BITS																			
WORD		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15		
		CRID				CDID													
		TP1 BITS 0-15																	
		TP1 BITS 16-31																	
		TP3 BITS 0-12												TP6 0-2					
		TP6 BITS 3-12										TP7 BITS 0-5							
		TP7 BITS 6-21																	
		OPL, ORIGINATING PORT 0-15																	
		OP	TPL, TERMINATING PORT 0-14																
		TP	OTG, ORIGINATING TRUNK GROUP													TT			
		TERMINATING TRUNK GROUP (1-12)												TP3Q					
		TP6Q	ACTION CODE						OTC				TTC						
		ID1				ID2				ANI INDEX									
		CLI 1				CLI 2				CLI 3				CLI 4					
		CLI 5				CLI 6				CLI 7				CLI 8					
		CLI 9				CLI 10				A1				A2					
		A3				A4				A5				A6					
		A7				A8				A9				A10					
		A11				A12				A13				A14					
		A15				A16				A17				A18					
		A19				A20				A21				A22					
		D1				D2				D3				D4					
		D5				D6				D7				D8					
		D9				D10				D11				D12					
		D13				D14				D15				D16					
		D17				PT01				PT02				PT03					
		PT04				PT05				PT06				PT07					
		PT08				PT09				PT010									
		PC				TMC				KMP				TP70					
		EC, ENTRY CODE								PO				MDID				DIVID	
		DO		CC	IN		SC	CD	DE	DT			SA	MOCLI					
		CN1				CN2				CN3				CN4					
		ACIF				SS7 RELEASE CODE								MCIDSEQ				NL	RS
BIT		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15		

FIG. 84

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		MSB														LSB			
BITS		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15		
WORD	00	CRID				CDID													
	01	TP1 BITS 0-15																	
	02	TP1 BITS 16-31																	
	03	TP3 BITS 0-12												TP6 0-2					
	04	TP6 BITS 3-12									TP7 BITS 0-5								
	05	TP7 BITS 6-21																	
	06	OPL, ORIGINATING PORT 0-15																	
	07	OP	TPL, TERMINATING PORT 0-14																
	08	TP	OTG, ORIGINATING TRUNK GROUP													TT			
	09	TERMINATING TRUNK GROUP (1-12)												TP3Q					
	10	TP6Q	ACTION CODE						OTC				TTC						
	11	ID1				ID2				ANI INDEX									
	12	CLI 1				CLI 2				CLI 3				CLI 4					
	13	CLI 5				CLI 6				CLI 7				CLI 8					
	14	CLI 9				CLI 10				CLI 11				CLI 12					
	15	CLI 13				CLI 14				CLI 15				A1					
	16	A2				A3				A4				A5					
	17	A6				A7				A8				A9					
	18	A10				A11				A12				A13					
	19	A14				A15				A16				A17					
	20	A18				A19				A20				A21					
	21	A22				A23				A24				A25					
	22	A26				A27				A28				A29					
	23	A30				A31				A32				A33					
	24	A34				A35				A36				A37					
	25	A38				A39				A40				A41					
	26	A42				A43				A44				A45					
	27	PC				TMC				KMP				TP70					
	28	EC, ENTRY CODE						PO				MDID				DIVID			
	29	DO	MN	CC	IN		SC	CD	DE	DT			SA	MOCLI					
	30	CN1				CN2				CN3				CN4					
	31	ACIF				SS7 RELEASE CODE								MCIDSEQ				NL	RS
BIT		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15		

FIG. 85A



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MSB															LSB	
BITS	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
32																
33																
34	D1				D2				D3				D4			
35	D5				D6				D7				D8			
36	D9				D10				D11				D12			
37	D13				D14				D15				D16			
38	D17				D18				D19				D20			
39	D21				D22				D23				D24			
40	D25				PTD1				PTD2				PTD3			
41	PTD4				PTD5				PTD6				PTD7			
42	PTD8				PTD9				PTD10				PTD11			
43	PTD12				PTD13				PTD14				PTD15			
44	EIR CALL TYPE								OVFVAL						CB	
45	OVFCL				DTA 1				DTA 2				DTA 3			
46	DTA 4				DTA 5				DTA 6				DTA 7			
47	DTA 8				DTA 9				DTA 10				DTA 11			
48	DTA 12				DTA 13				DTA 14				DTA 15			
49	OVFC							DTAC							MCID	
50	NETWORK CALL IDENTIFIER (NCID)															
51	NETWORK CALL IDENTIFIER (NCID)															
52	NETWORK CALL IDENTIFIER (NCID)															
53	NETWORK CALL IDENTIFIER (NCID)															
54	NETWORK CALL IDENTIFIER (NCID)															
55																
56																
57																
58																
59													USE TYPE		UUIE	
60	UUIE COUNT CONT.														OVFCS	
61	ORIGINATING NX64 BITMAP (1-16)															
62	ORIG NX64 BITMAP (17-24)								TERM NX64 BITMAP (1-8)							
63	TERMINATING NX64 BITMAP (9-24)															
BIT	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15

FIG. 85B

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		MSB														LSB			
BITS		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15		
WORD	00	CRID				CDID													
	01	TP1 BITS 0-15																	
	02	TP1 BITS 16-31																	
	03	TP4 BITS 0-12												TP6 0-2					
	04	TP6 BITS 3-12									TP7 BITS 0-5								
	05	TP7 BITS 6-21																	
	06	OPL, ORIGINATING PORT 0-15																	
	07	OP	TPL, TERMINATING PORT 0-14																
	08	TP	OTG, ORIGINATING TRUNK GROUP														TT		
	09	TERMINATING TRUNK GROUP (1-12)												TP3Q					
	10	TP6Q	ACTION CODE						OTC				TTC						
	11	ID1				ID2				ONACC				TNACC					
	12	CLI 1				CLI 2				CLI 3				CLI 4					
	13	CLI 5				CLI 6				CLI 7				CLI 8					
	14	CLI 9				CLI 10				A1				A2					
	15	A3				A4				A5				A6					
	16	A7				A8				A9				A10					
	17	A11				A12				A13				A14					
	18	A15				A16				A17				A18					
	19	A19				A20				A21				A22					
	20	D1				D2				D3				D4					
	21	D5				D6				D7				D8					
	22	D9				D10				D11				D12					
	23	D13				D14				D15				D16					
	24	D17				OPIN													
	25	OPIN			TPS BITS 0-12														
	26	RM1				RM2				RM3				RM4					
	27	FC				TMC				NAT				TP7Q					
	28	EC, ENTRY CODE								PO				MDID				DIVID	
	29	DO		CC	IN		SC	CD	DE	DT	PP	XC	SA	MOCLI					
	30	CN1				CN2				CN3				CN4					
31	ACIF				SS7 RELEASE CODE								MCIDSEQ				NL	RS	
BIT		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15		

FIG. 86

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		MSB														LSB			
BITS		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15		
WORD	00	CRID				CDID													
	01	TP1 BITS 0-15																	
	02	TP1 BITS 16-31																	
	03	TP3 BITS 0-12												TP6 0-2					
	04	TP6 BITS 3-12									TP7 BITS 0-5								
	05	TP7 BITS 6-21																	
	06	OPL, ORIGINATING PORT 0-15																	
	07	OP	TPL, TERMINATING PORT 0-14																
	08	TP		OTG, ORIGINATING TRUNK GROUP												TT			
	09	TERMINATING TRUNK GROUP (1-12)												TP3Q					
	10	TP6Q		ACTION CODE						OTC				TTC					
	11	ID1				ID2				ORIG1				TERM1					
	12	CLI 1				CLI 2				CLI 3				CLI 4					
	13	CLI 5				CLI 6				CLI 7				CLI 8					
	14	CLI 9				CLI 10				CLI 11				CLI 12					
	15	CLI 13				CLI 14				CLI 15				A1					
	16	A2				A3				A4				A5					
	17	A6				A7				A8				A9					
	18	A10				A11				A12				A13					
	19	A14				A15				A16				A17					
	20	A18				A19				A20				A21					
	21	A22				A23				A24				A25					
	22	A26				A27				A28				A29					
	23	A30				A31				A32				A33					
	24	A34				A35				A36				A37					
	25	A38				A39				A40				A41					
	26	A42				A43				A44				A45					
	27	PC				TMC				MAT				TF7Q					
	28	EC, ENTRY CODE								PD				MDID				DIVID	
	29	DO	MN	CC	IN		SC	CD	DE	DT	PP	XC	SA	MOCLI					
	30	CN1				CN2				CN3				CN4					
	31	ACIF				SS7 RELEASE CODE								MCIDSEQ				NL	RS
BIT		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15		

EOSR/EPOSR FORMAT

FIG. 87A

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MSB															LSB	
BITS	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
32	TLC GUEST 1								TLC GUEST 2							
33	TLC GUEST 3								TLC GUEST 4							
34	D1				D2				D3				D4			
35	D5				D6				D7				D8			
36	D9				D10				D11				D12			
37	D13				D14				D15				D16			
38	D17				D18				D19				D20			
39	D21				D22				D23				D24			
40	D25				PTD1				PTD2				PTD3			
41	PTD4				PTD5				PTD6				PTD7			
42	PTD8				PTD9				PTD10				PTD11			
43	PTD12				PTD13				PTD14				PTD15			
44	EIR CALL TYPE								OVFVAL						CB	
45	OVFCL				DTA 1				DTA 2				DTA 3			
46	DTA 4				DTA 5				DTA 6				DTA 7			
47	DTA 8				DTA 9				DTA 10				DTA 11			
48	DTA 12				DTA 13				DTA 14				DTA 15			
49	OVFC						DTAC								MCID	
50	NETWORK CALL IDENTIFIER (NCID)															
51	NETWORK CALL IDENTIFIER (NCID)															
52	NETWORK CALL IDENTIFIER (NCID)															
53	NETWORK CALL IDENTIFIER (NCID)															
54	NETWORK CALL IDENTIFIER (NCID)															
55	TLC ROOM 1								TLC ROOM 2							
56	TLC ROOM 3								TLC ROOM 4							
57	TLC ROOM 5								TLC ROOM 6							
58	KAC1				KAC2				KAC3				KAC4			
59	KAC5				KAC6				KAC7				KAC8			
60	KAC9				KAC10				KAC11				KAC12			
61	OPIN														OVFCS	
62	TPS – OPERATOR RELEASE															
63	RN1				RN2				RN3				RN4			
BIT	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15

FIG. 87B

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		MSB														LSB		
BIT		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	
WORD	00	CRID				SYNC WORD (MINUS 2, OCTAL 7776)												
	01	CDID, CALL DISCONNECT I.D. NUMBER (0-15)																
	02	CDID, CALL DISCONNECT I.D. NUMBER (16-31)																
	03	SWID 1				SWID 2				SWID 3								
	04	ST - SWITCH TYPE								EQ - EVENT QUALIFIER								
	05	SERET - SER EVENT TIME (0-15)																
	06	SERET - SER EVENT TIME (16-31)																
	07					FCDID - FIRST RECORD CDID (12 LSBs)												
	08					LCDID - LAST RECORD CDID (12 LSBs)												
	09					NCDID - NEXT RECORD CDID (12 LSBs)												
	10	NBSM - NEXAS BLOCK SEQUENCE MONSTER																
	11	PT - PREVIOUS TIME (0-15)																
	12	PT - PREVIOUS TIME (16-31)																
	13	SI	TIME OFFSET															
	14																	
	15																	
	16	SOFTWARE LOAD ID1								SOFTWARE LOAD ID2								
	17	SOFTWARE LOAD ID3								SOFTWARE LOAD ID4								
	18	SOFTWARE LOAD ID5								SOFTWARE LOAD ID6								
	19	LAST PATCH/PR RLS1								LAST PATCH/PR RLS2								
	20	QCDR						QICDR										
	21	QPMR						QEPMR										
	22	QOER						QEOMR										
	23	QPOER						QEPOER										
	24	QSER						CRYN								SU		
	25	CIR THROTTLE START TIME (0-15)																
	26	CIR THROTTLE START TIME (16-31)																
	27	CIR THROTTLE STOP TIME (0-15)																
	28	CIR THROTTLE STOP TIME (16-31)																
	29														FORMAT VER.			
	30	THROTTLE COUNT (0-15)																
31	THROTTLE COUNT (16-31)																	
BIT		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	

FIG. 88

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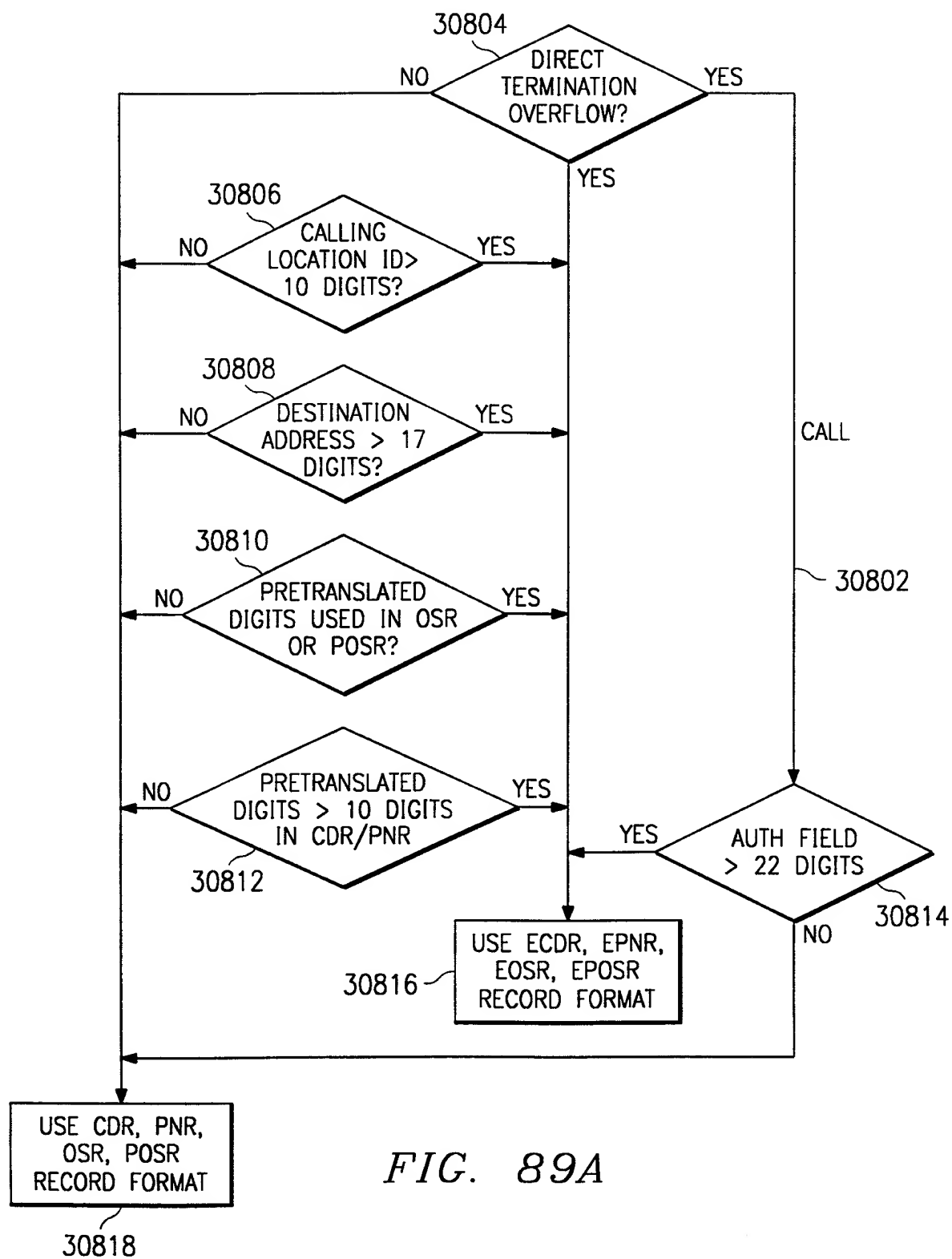
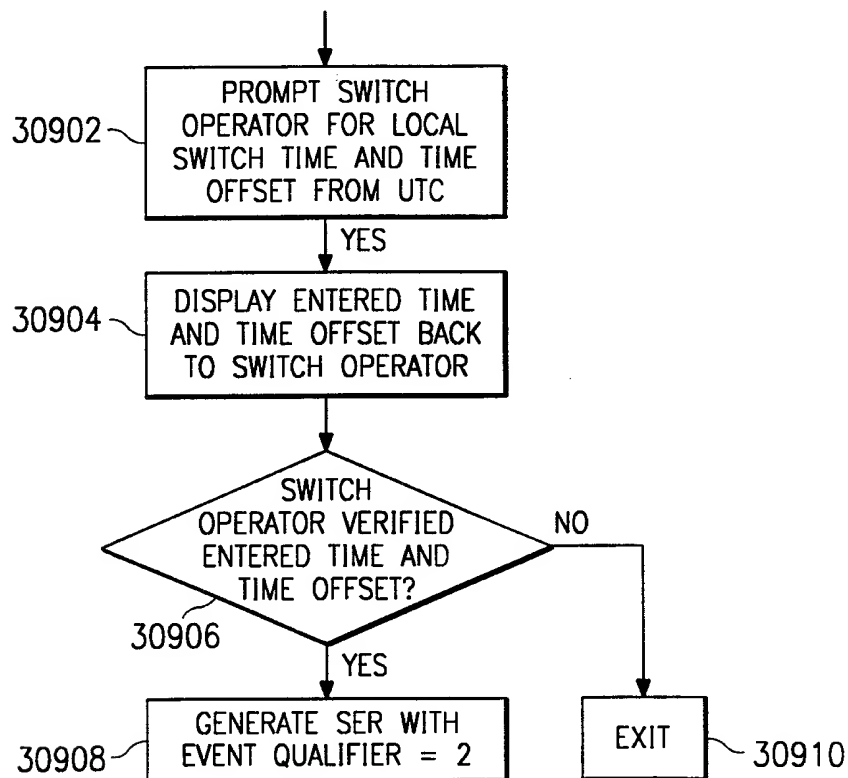
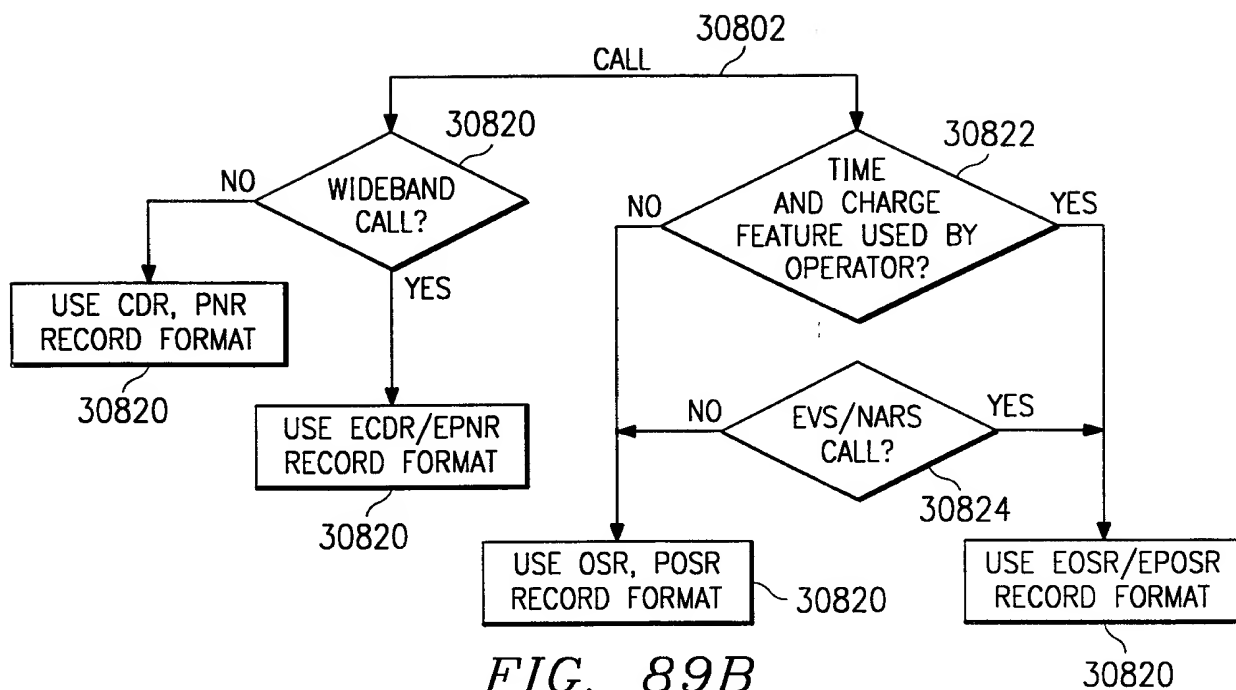


FIG. 89A

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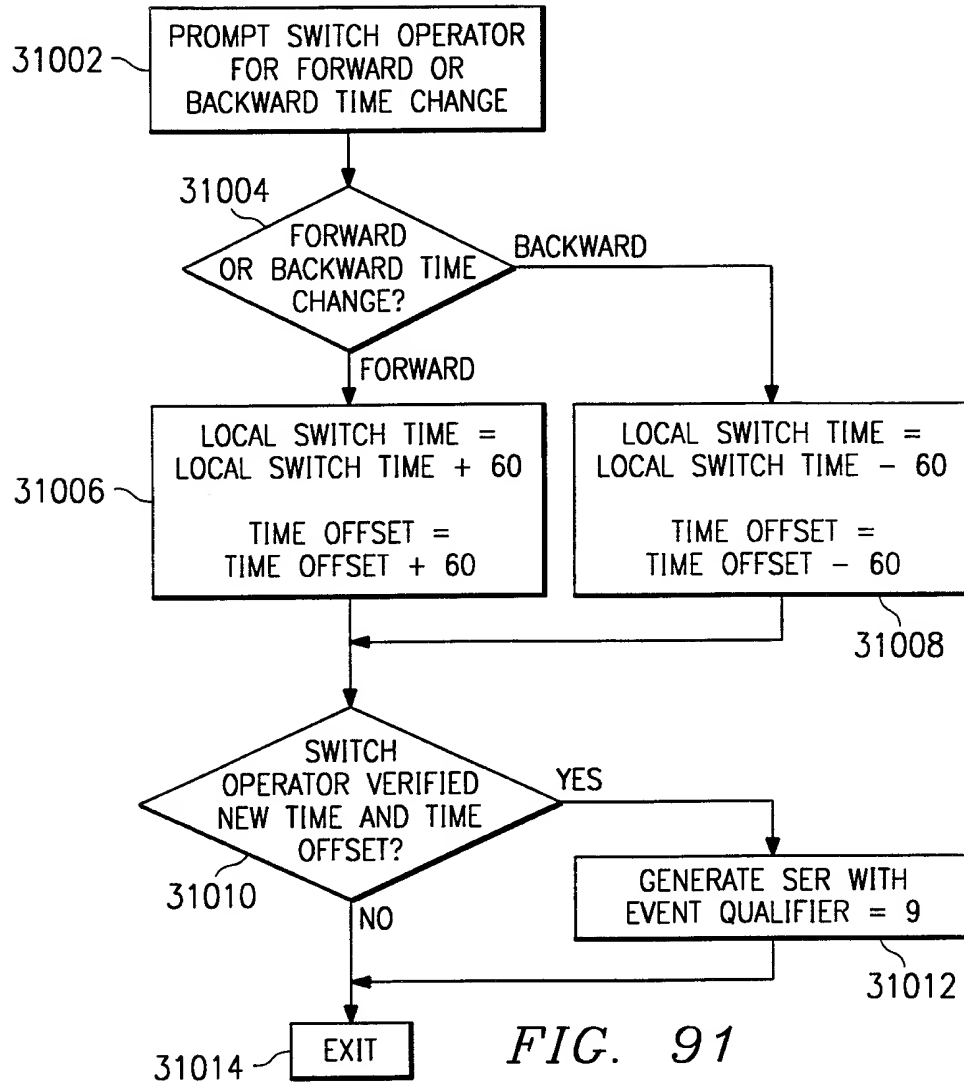


FIG. 91

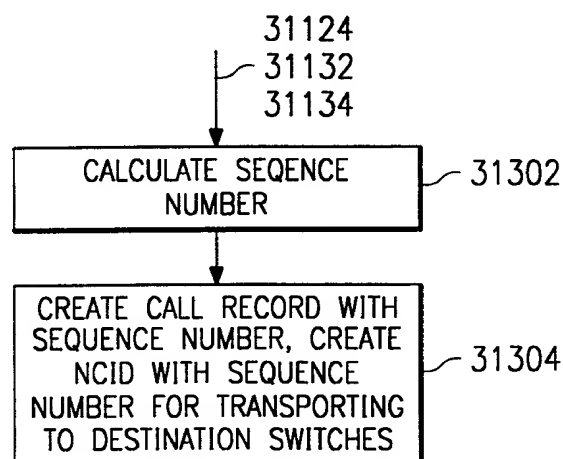


FIG. 94A



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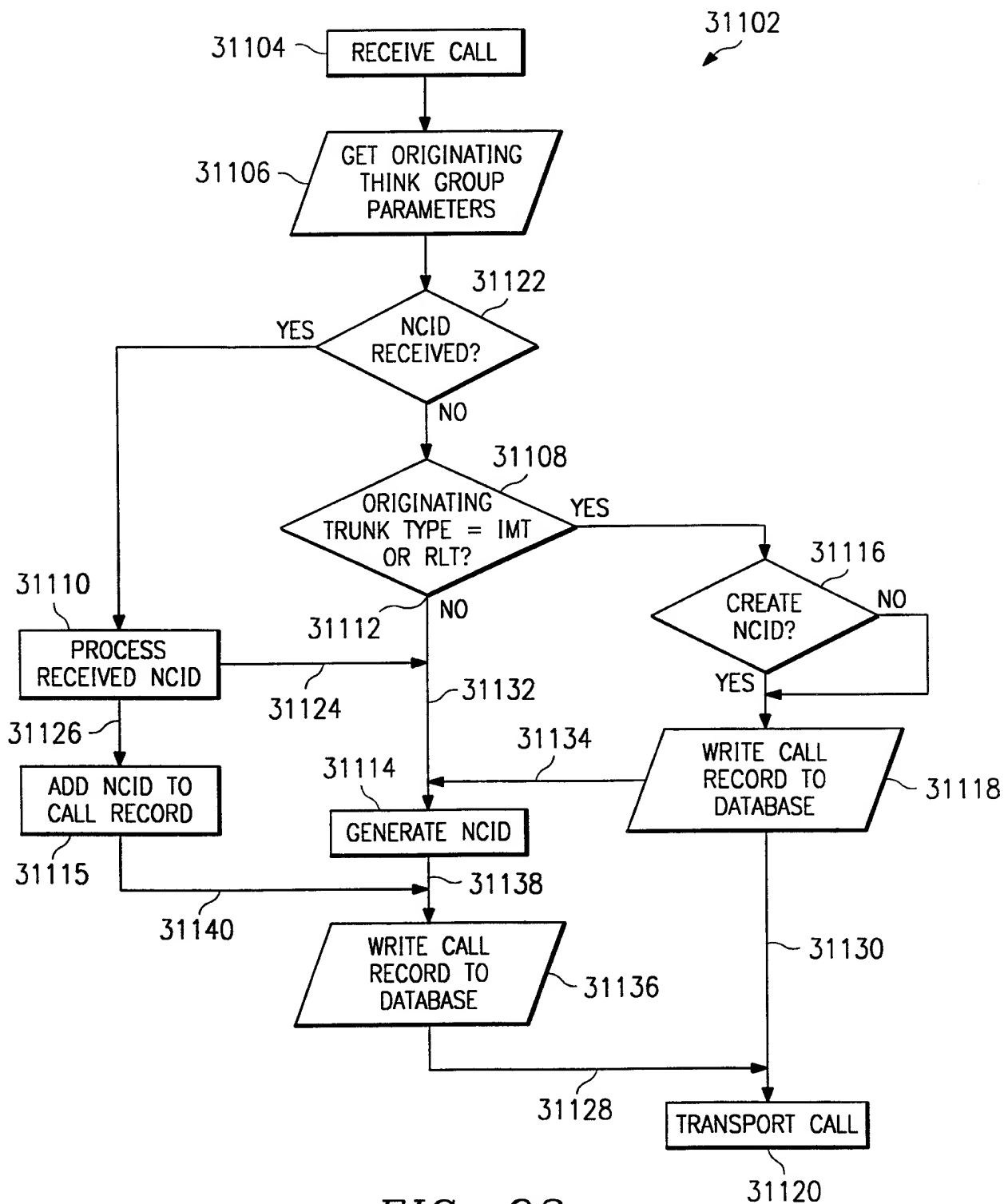
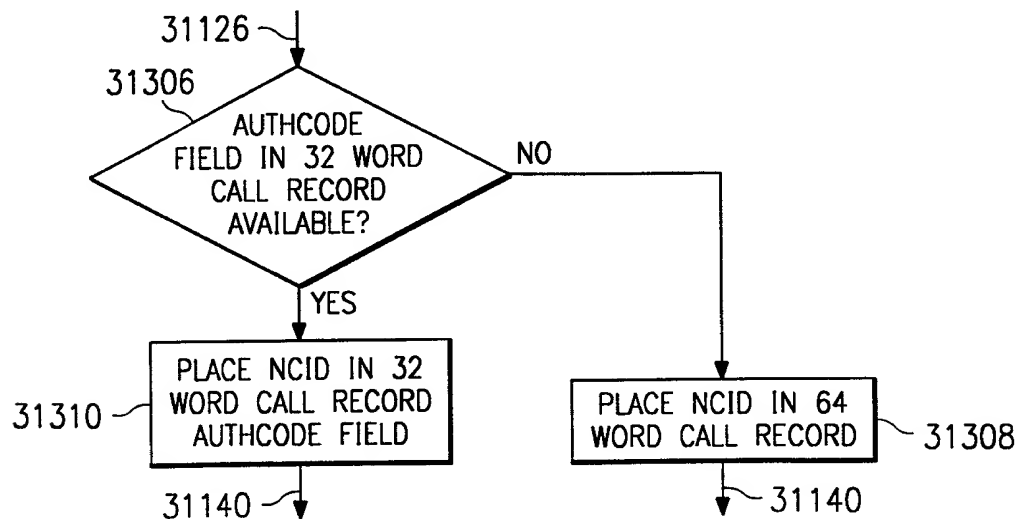
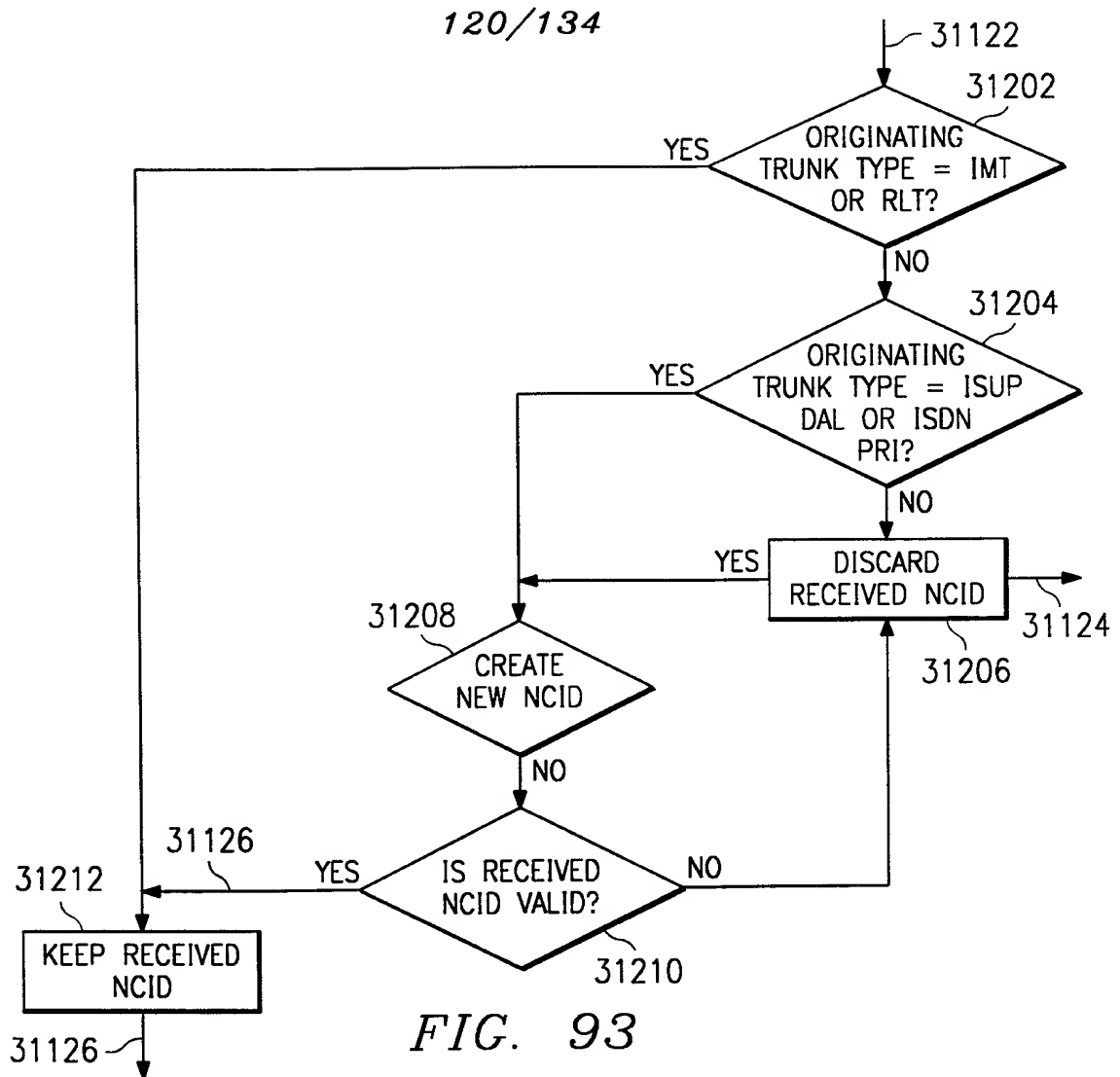


FIG. 92



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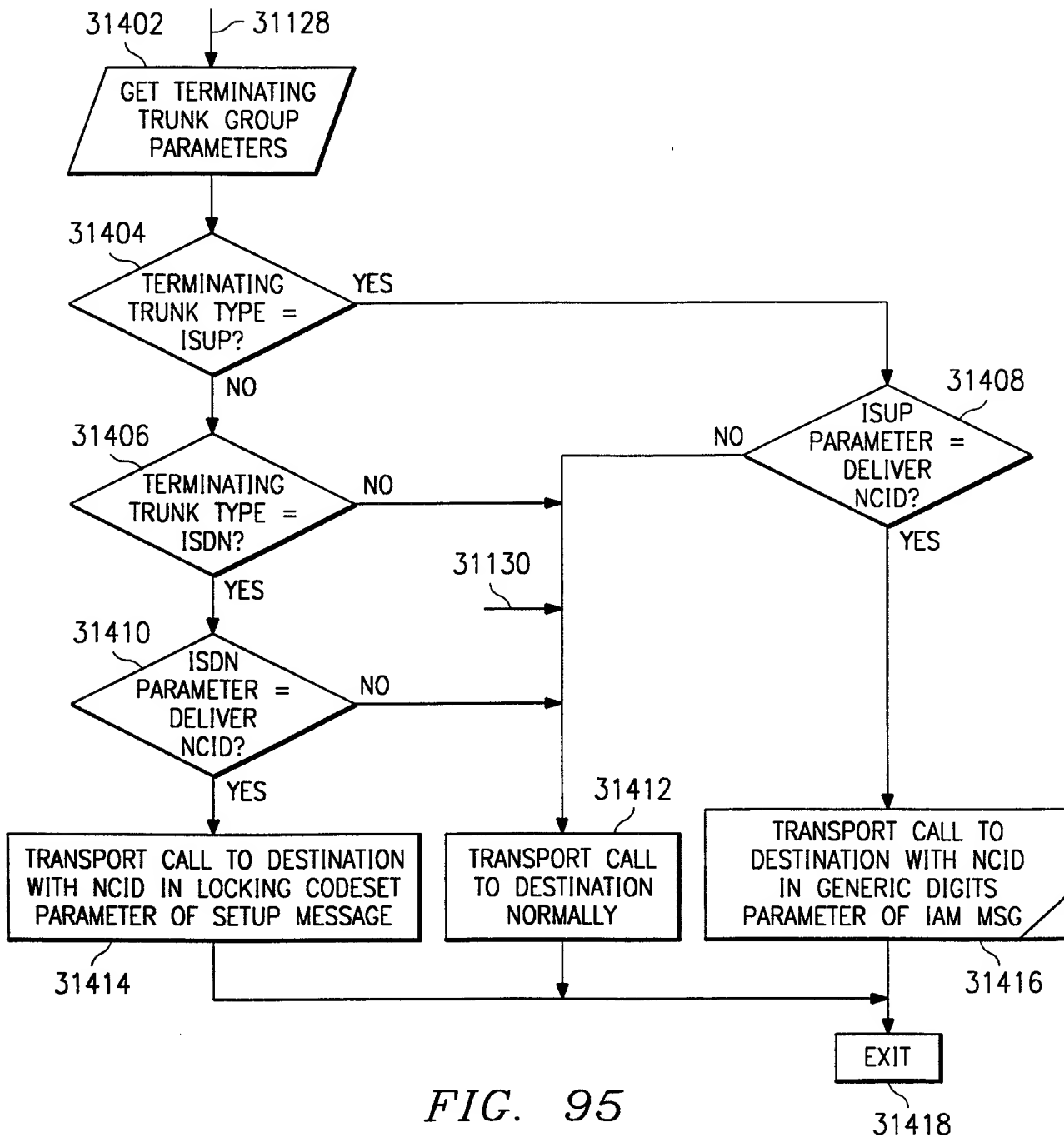


FIG. 95

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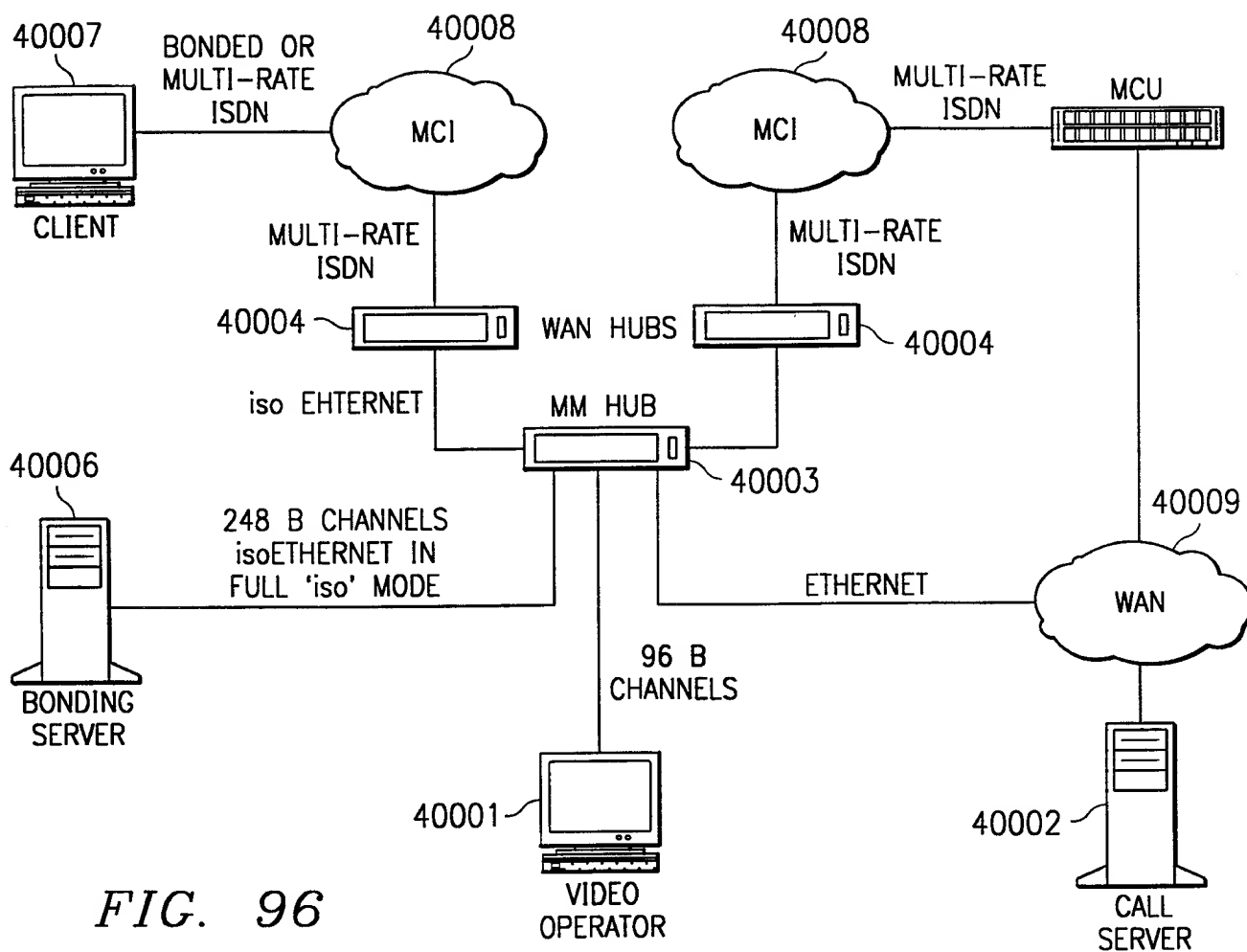


FIG. 96

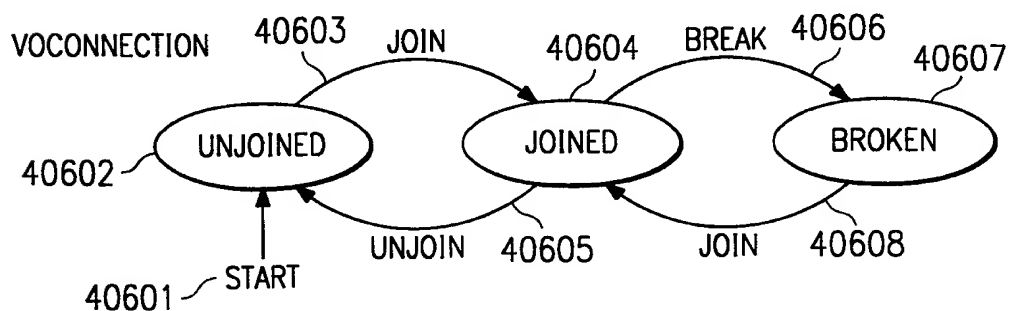
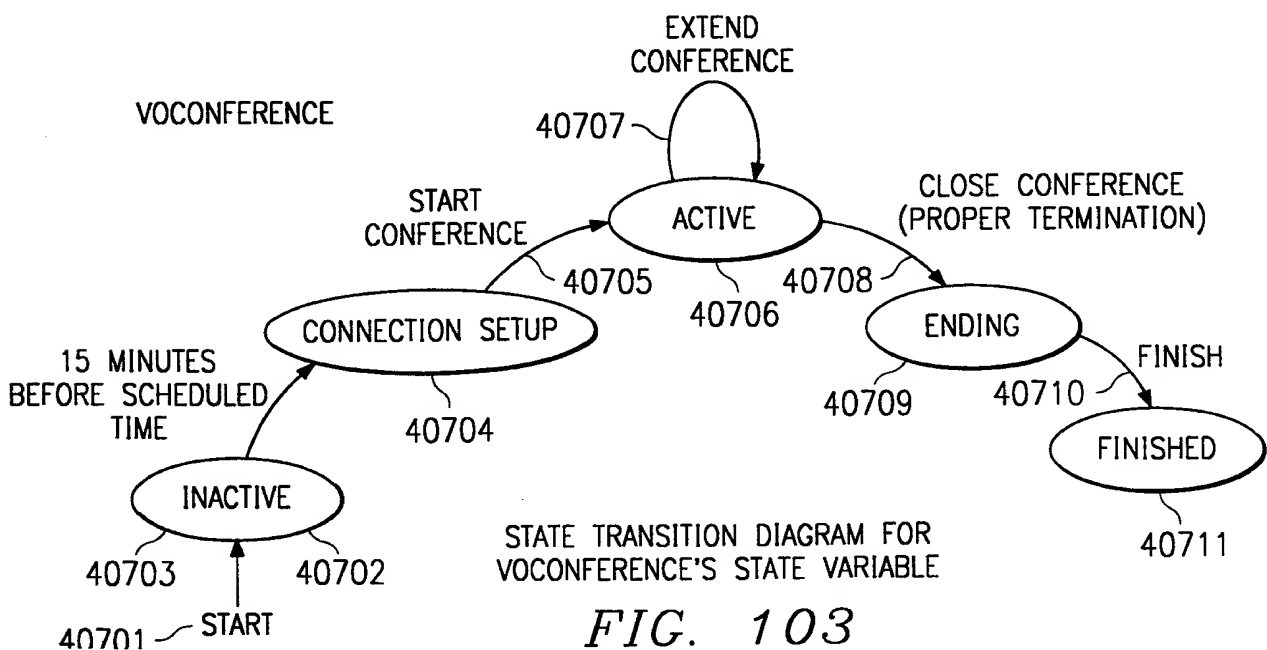
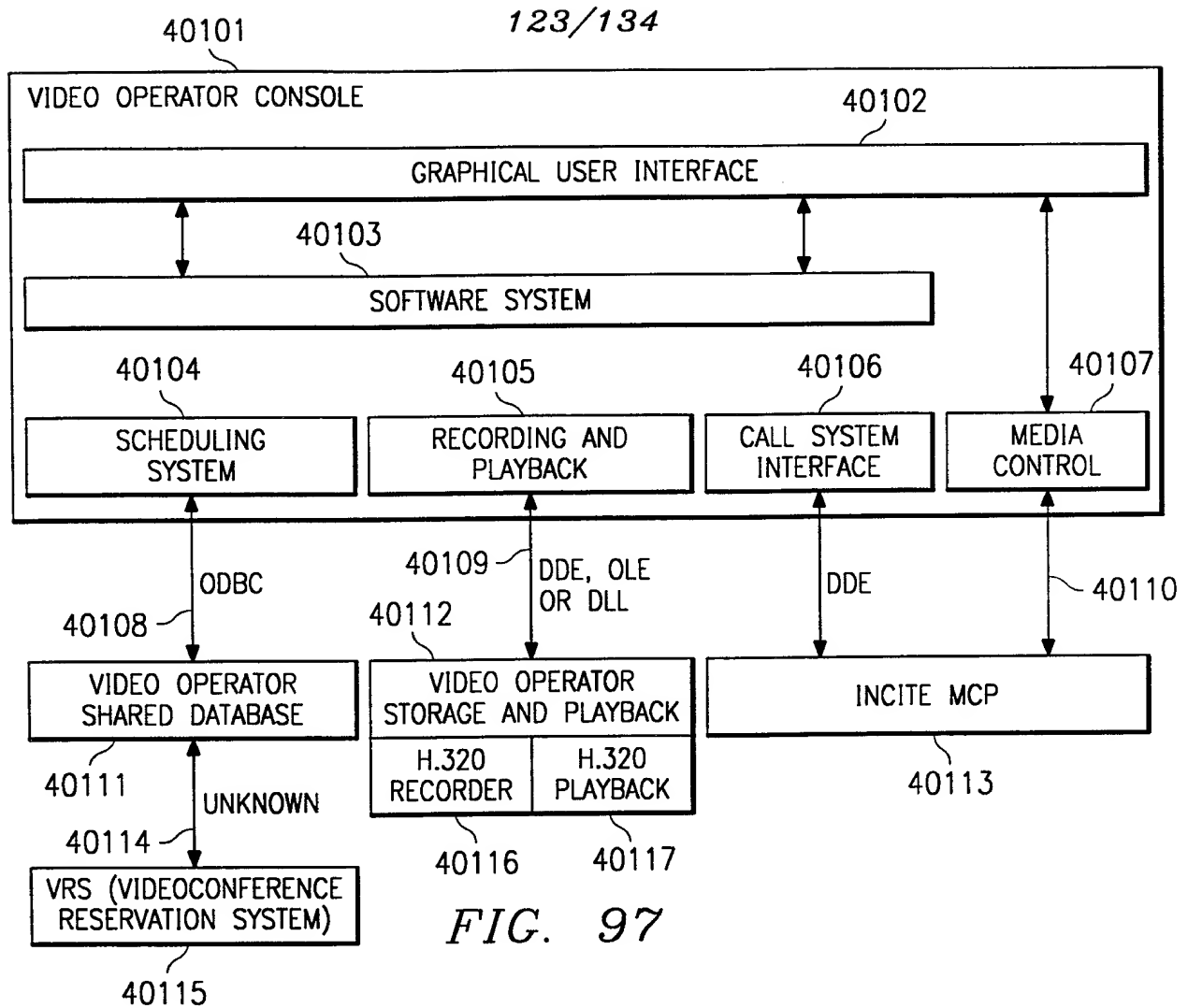
STATE TRANSITION DIAGRAM FOR  
VOCONNECTION'S STATE VARIABLE

FIG. 102



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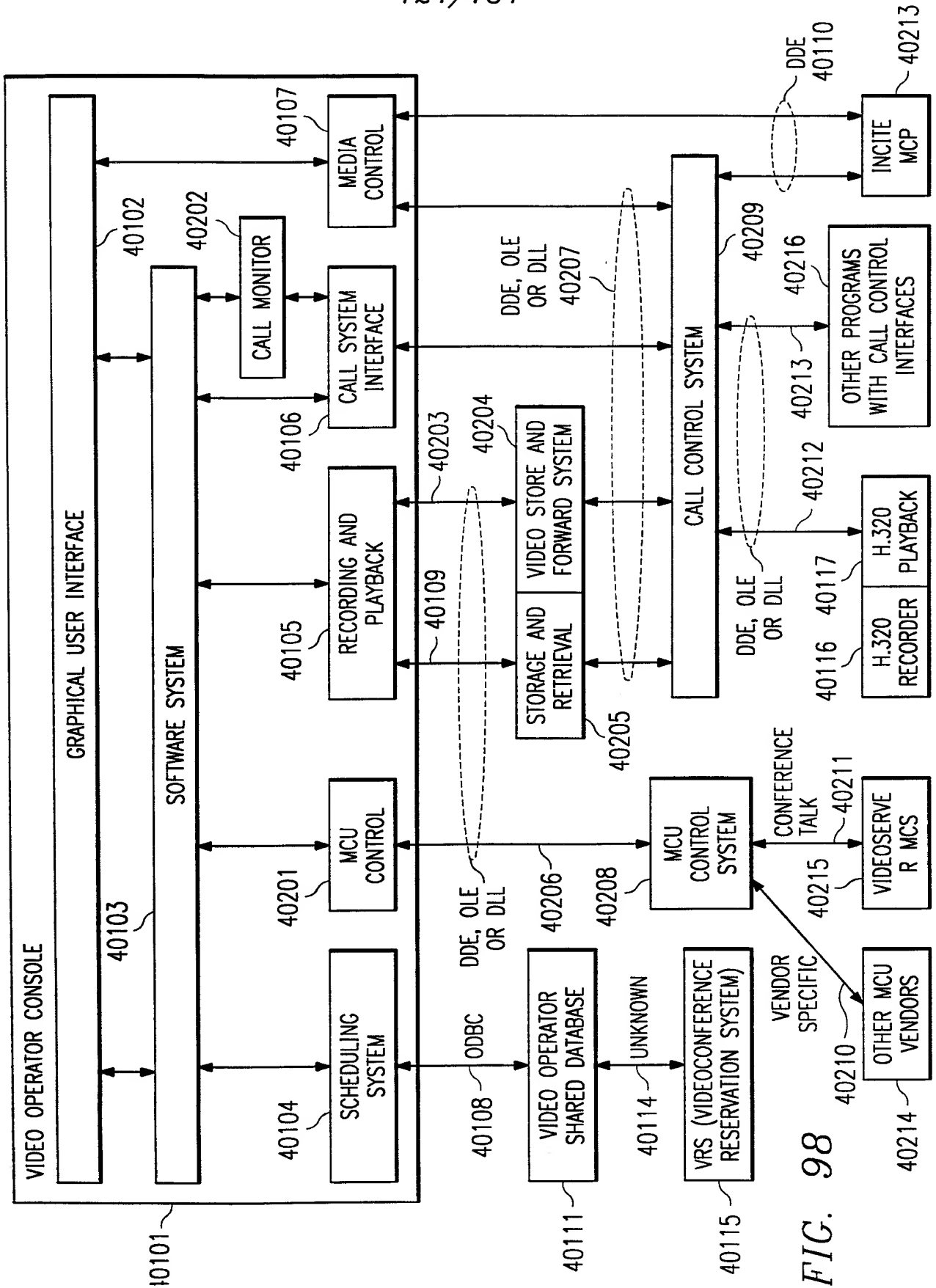


FIG. 98

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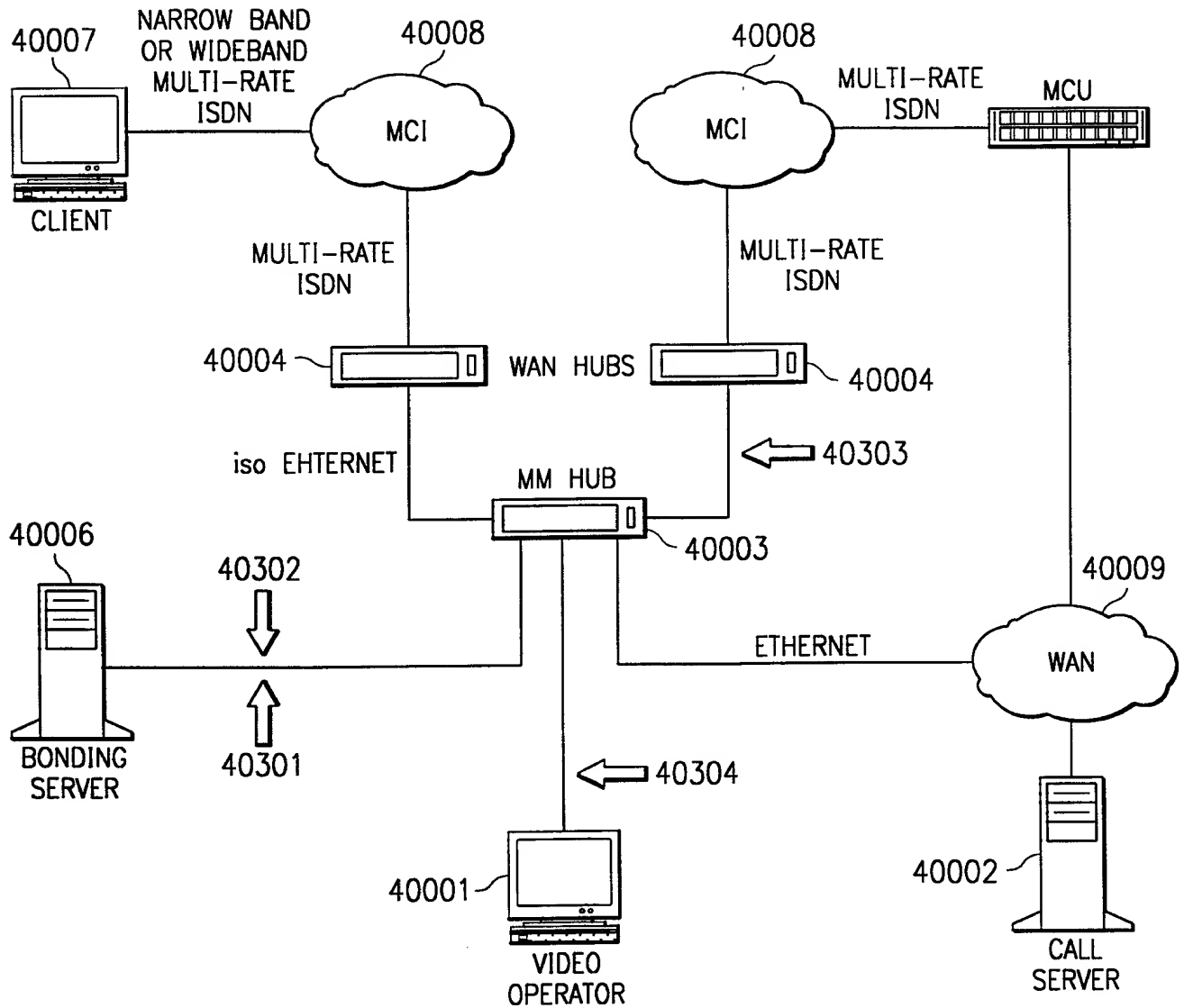
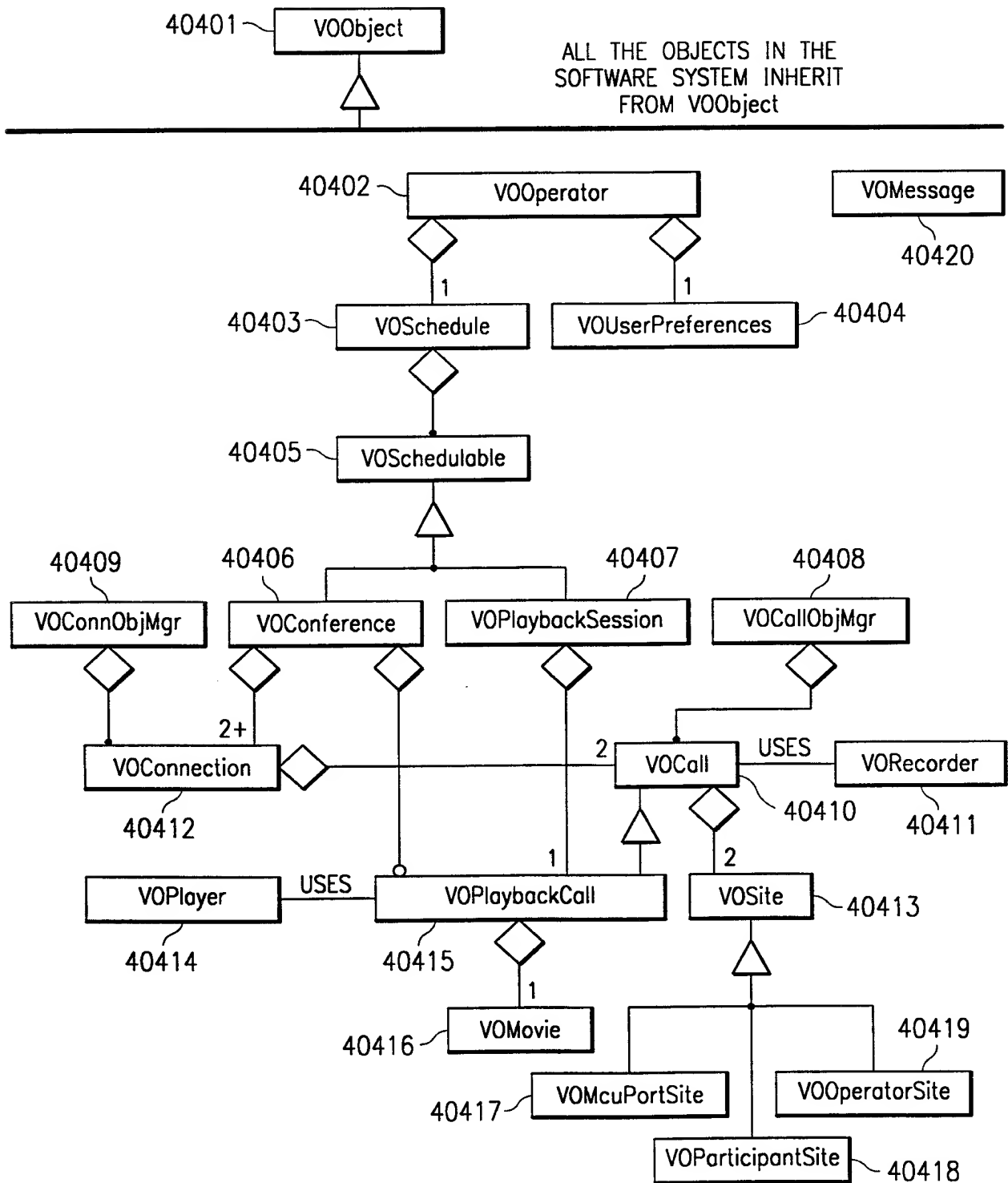


FIG. 99

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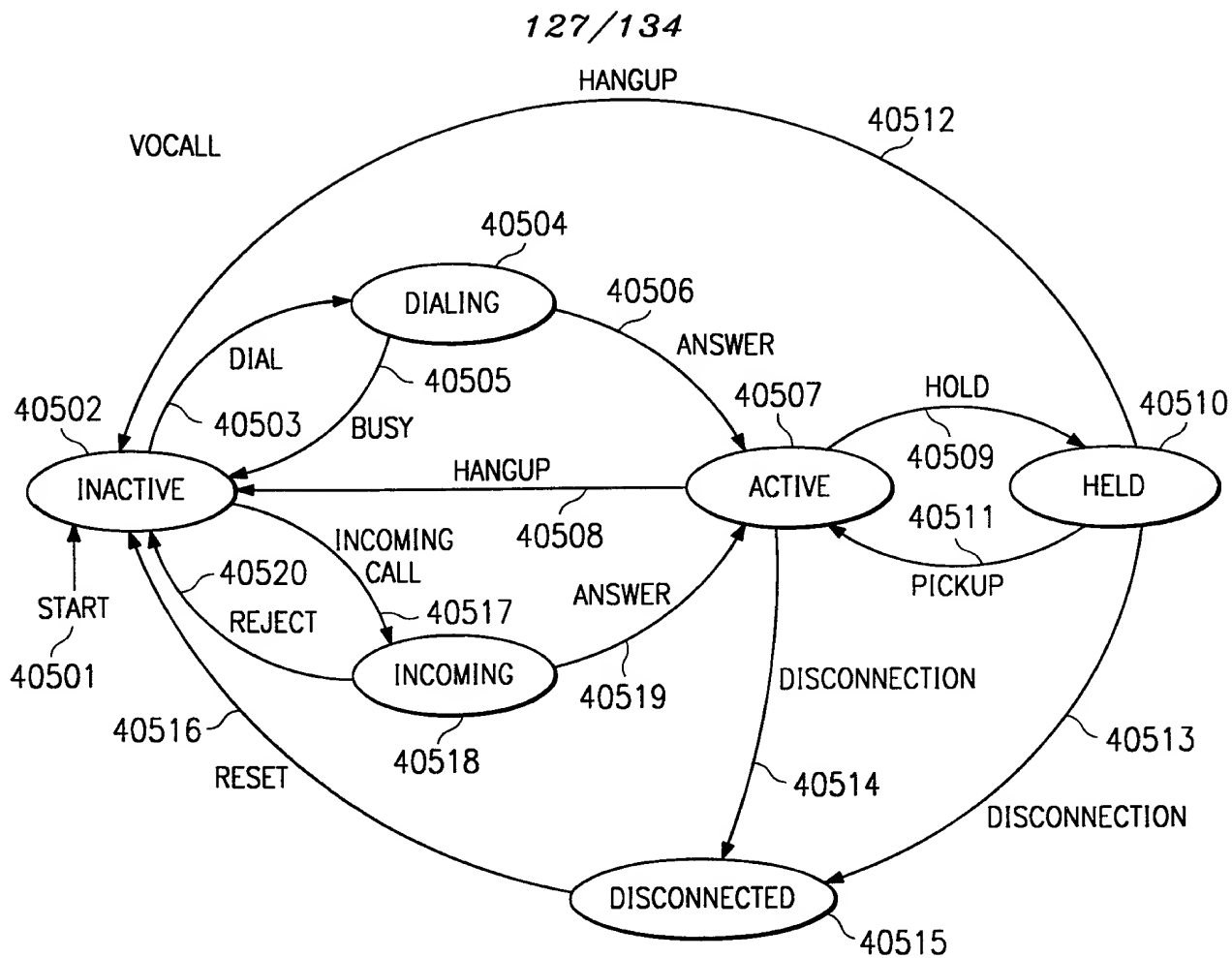
## VIDEO OPERATOR SOFTWARE SYSTEM CLASSES



CLASS HIERARCHY FOR VIDEO OPERATOR SOFTWARE SYSTEM

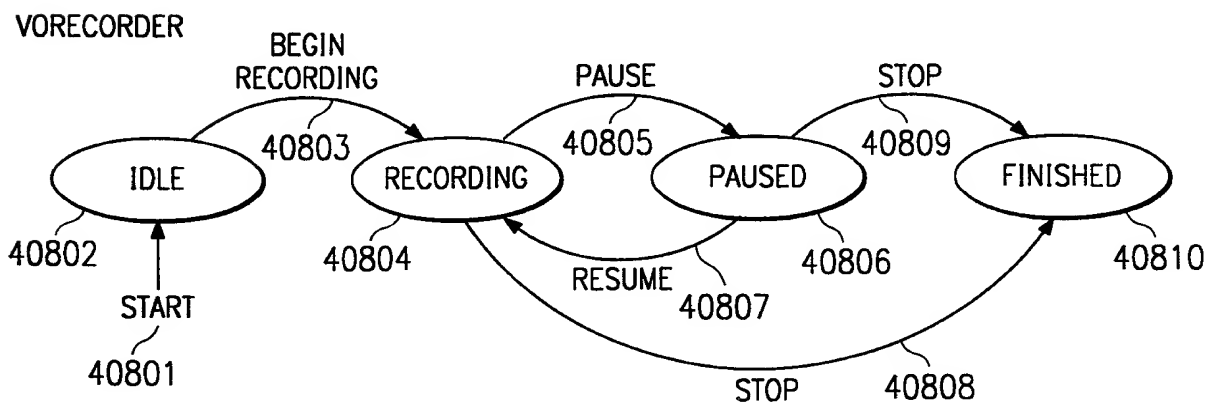
FIG. 100





STATE TRANSITION DIAGRAM FOR  
VOCALL'S STATE VARIABLE

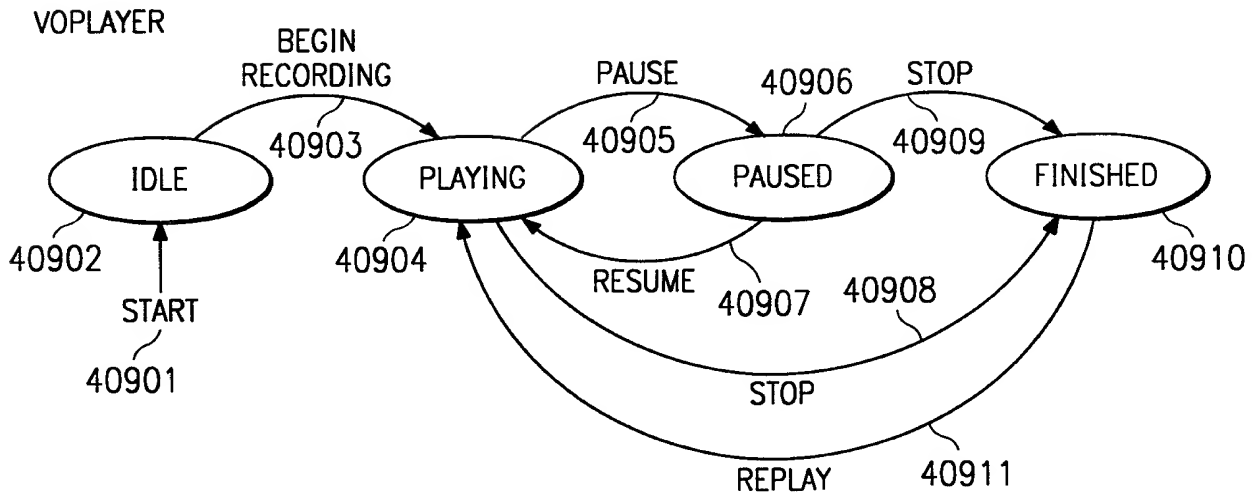
*FIG. 101*



STATE TRANSITION DIAGRAM FOR  
VORECORDER'S STATE VARIABLE

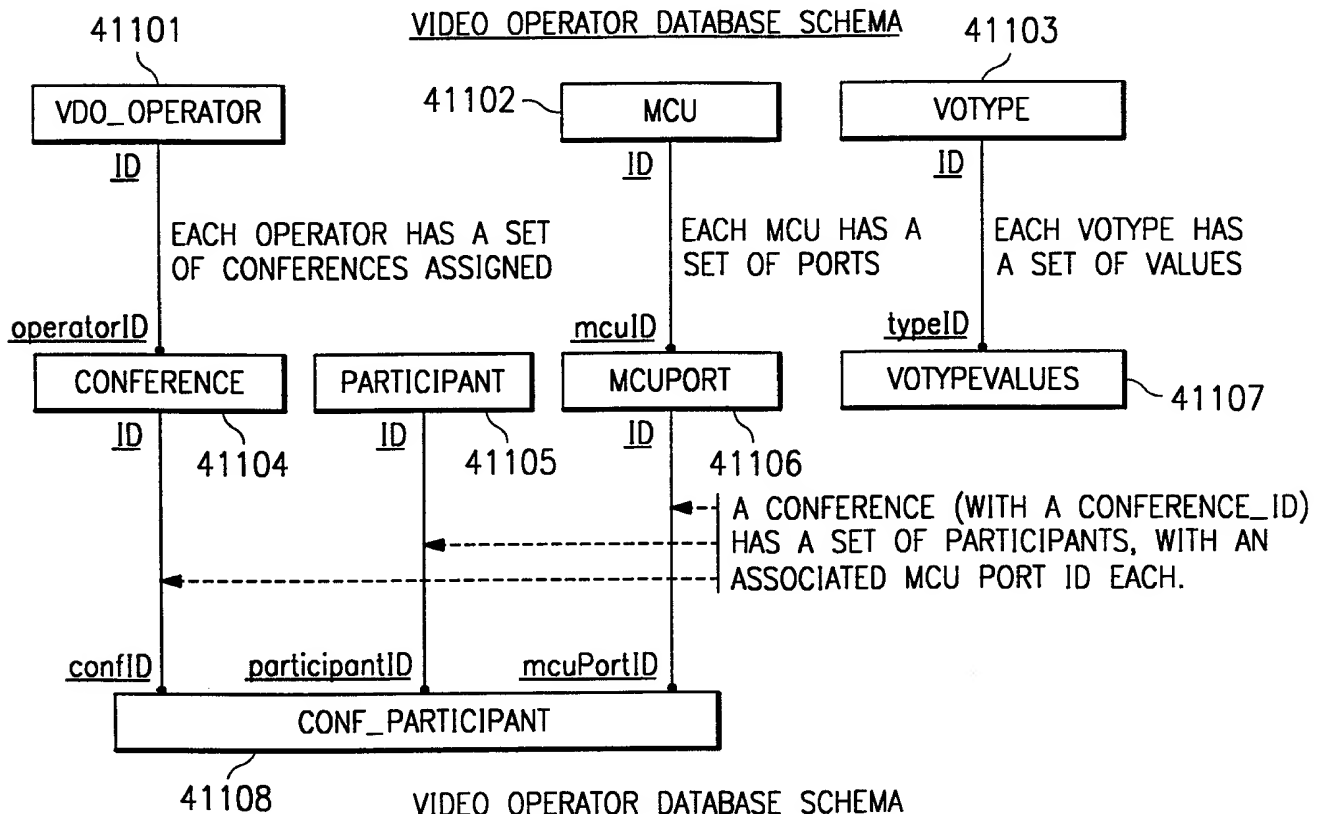
*FIG. 104*

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STATE TRANSITION DIAGRAM FOR  
VOPLAYER'S STATE VARIABLE

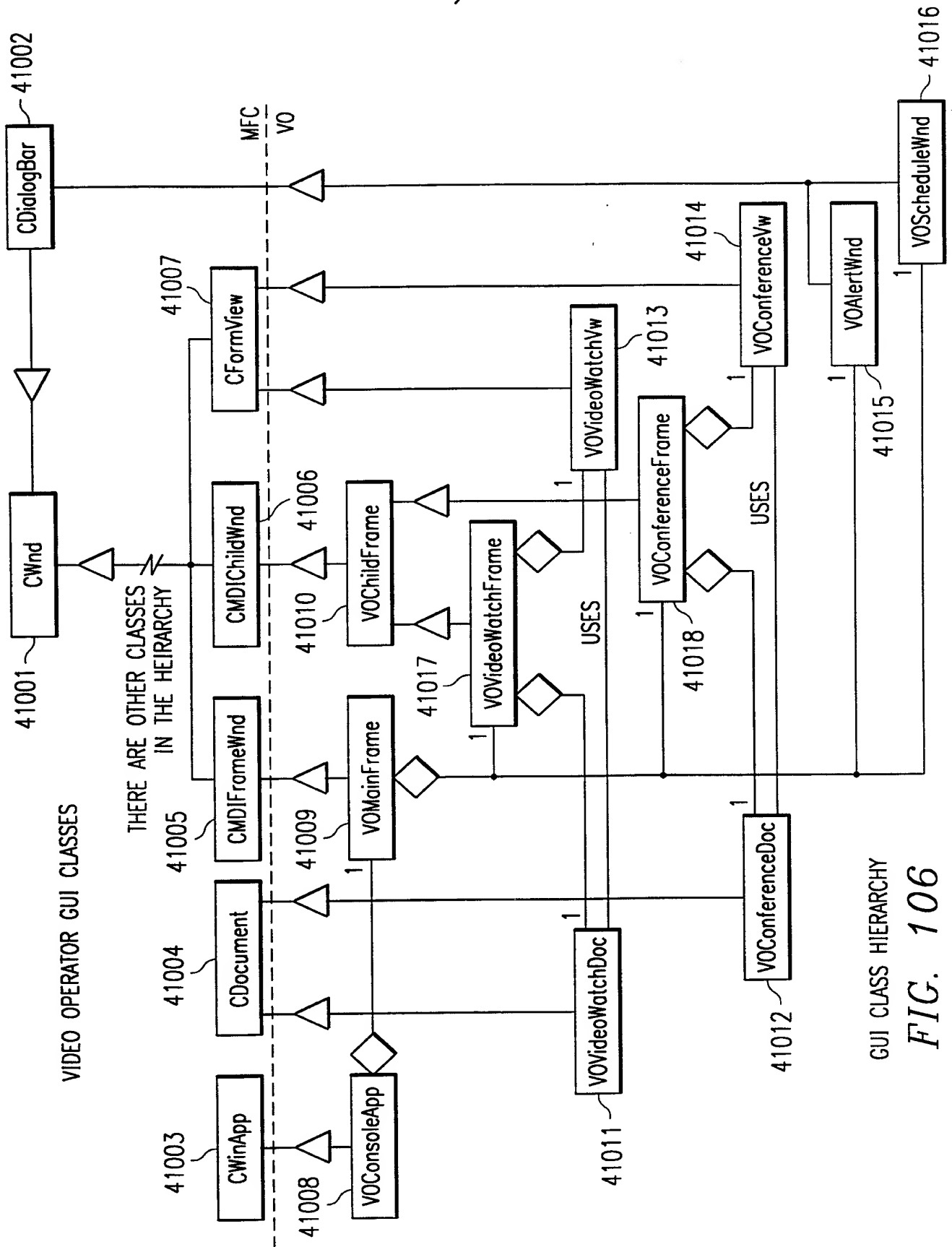
*FIG. 105*



VIDEO OPERATOR DATABASE SCHEMA

*FIG. 107*

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FIG. 108

MAIN CONSOLE WINDOW

41201
41206

Video Operator Console
41203
41204

Console Conference Window Help

☐ Schedule

☒ All ☐ Active

Company Weekly Cont

Apr 8 - 10:30

ATG Design Review

Apr 8 - 13:30

J. Smith Playback season

Apr 8 - 13:30

MCI Directors Meeting

Apr 8 - 14:30

Sites

Adam

Brian

Charles

Dianne

Edward

☐ Conference

Company Weekly Conf:

Active Time 01:14:13 Sec

Start Time April 8 10:30 AM

Adam

HangUp

Hold

MC11 Site A823 ???

Join

HangUp

Hold

Call Status

Site Jury MCU

Participants

☒ Adam

☐ Brian

☐ Charles

☐ Dianne

☐ Edward

☐ Video Watch

☒ Conference ☐ Self ☐ Select

Self Viewed

MC11 Site

MC11 Site

MC11 Site

MC11 Site

Dial

Answer

Hang Up

Player

Forward

Hold

Record

Mute

Privacy

JoinConf

Alerts

Conference 1 Status

Connection to MCU last from Adam

For Help Press F9

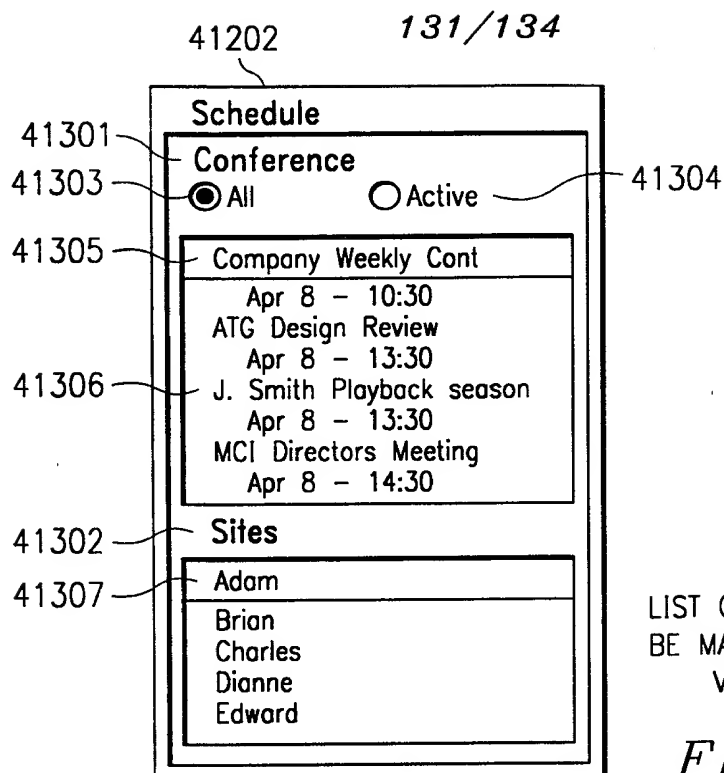


FIG. 109

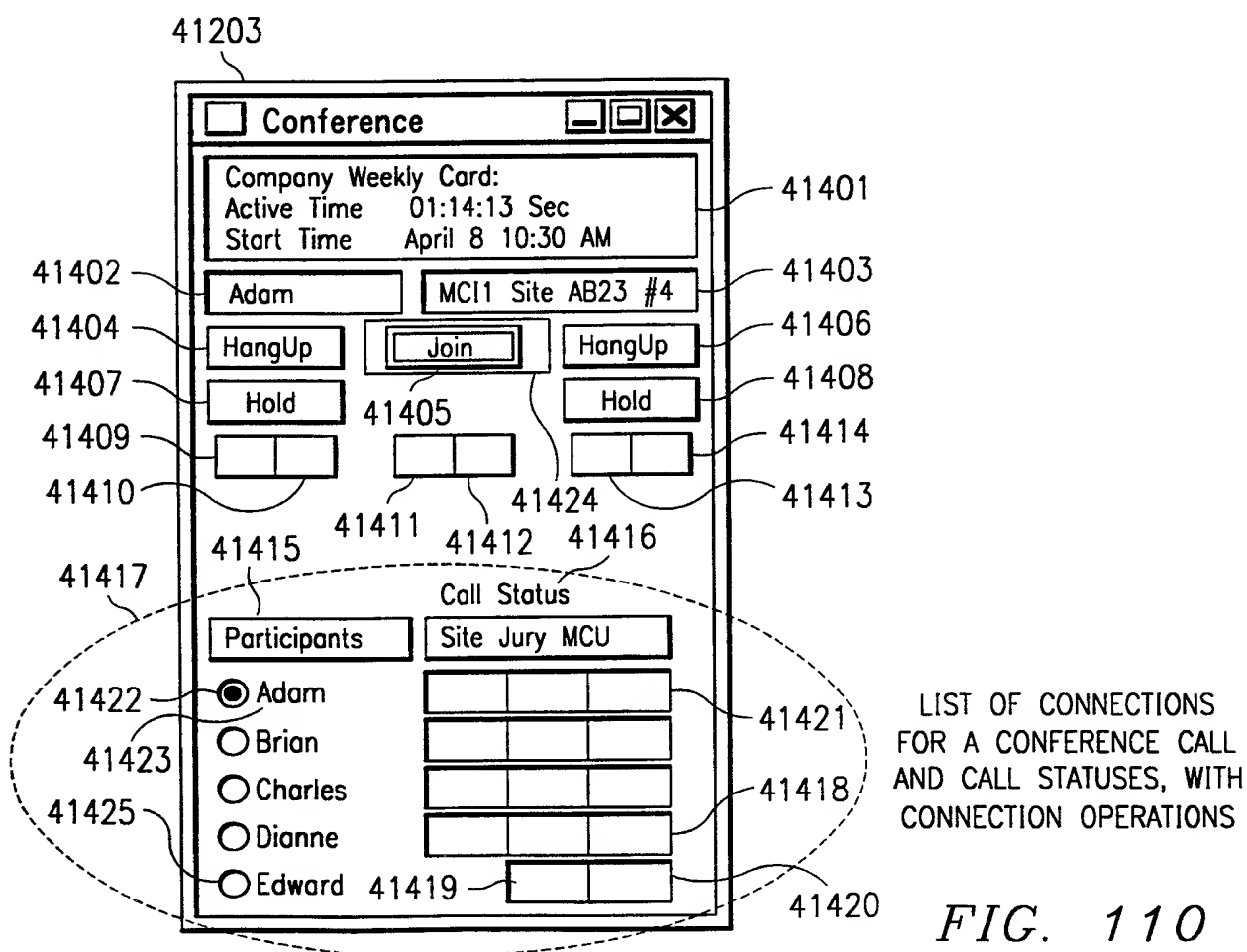
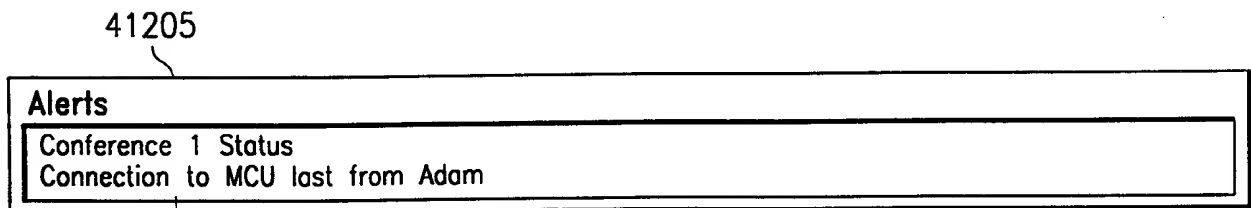
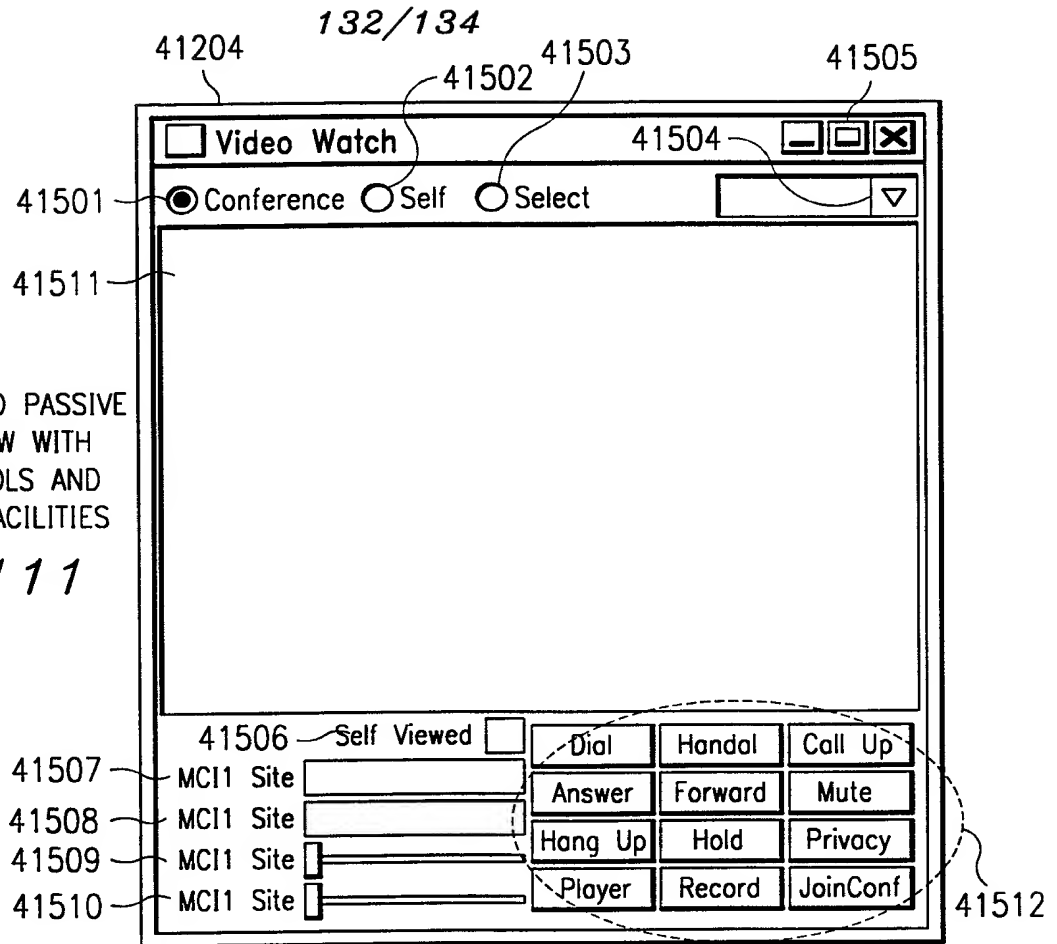


FIG. 110

INTERACTIVE AND PASSIVE  
VIDEO WINDOW WITH  
MEDIA CONTROLS AND  
CALL SETUP FACILITIES

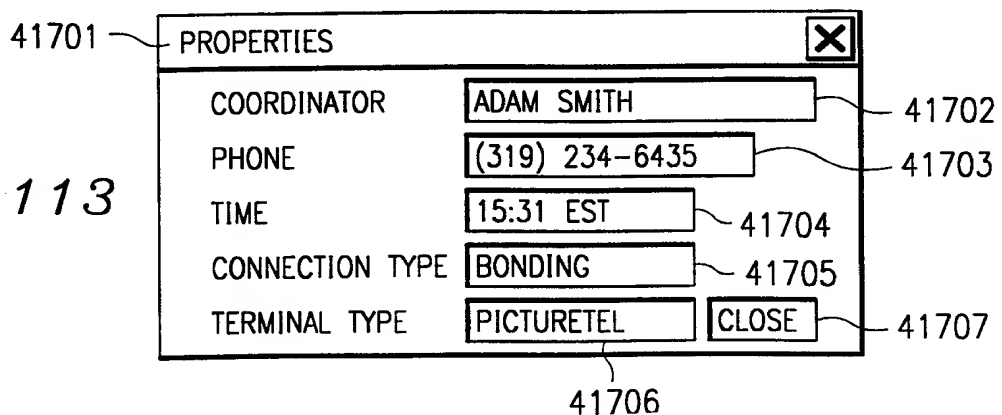
*FIG. 111*



[MESSAGE] [VIDEO OUTPUT] [ALERT] WINDOW

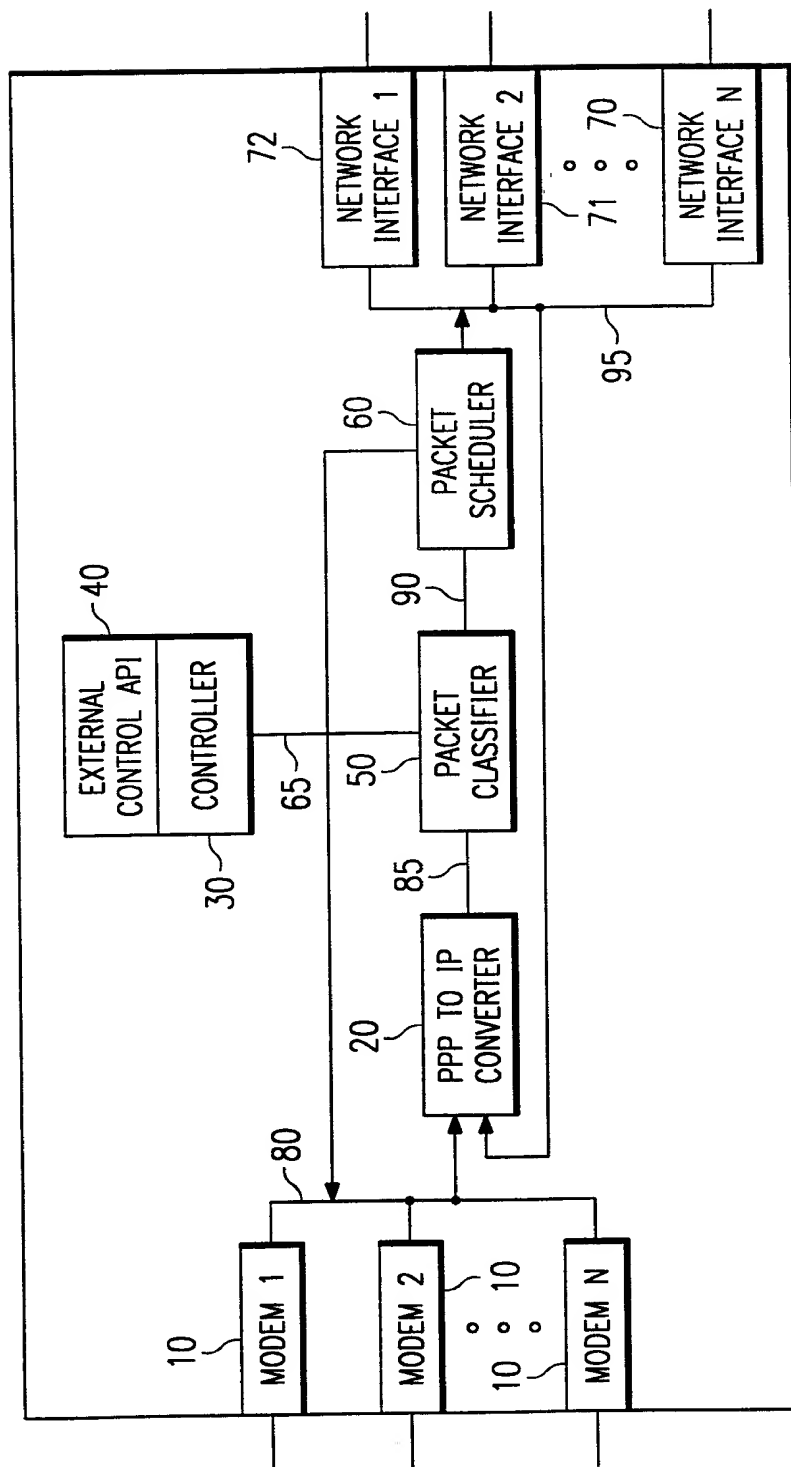
*FIG. 112*

*FIG. 113*

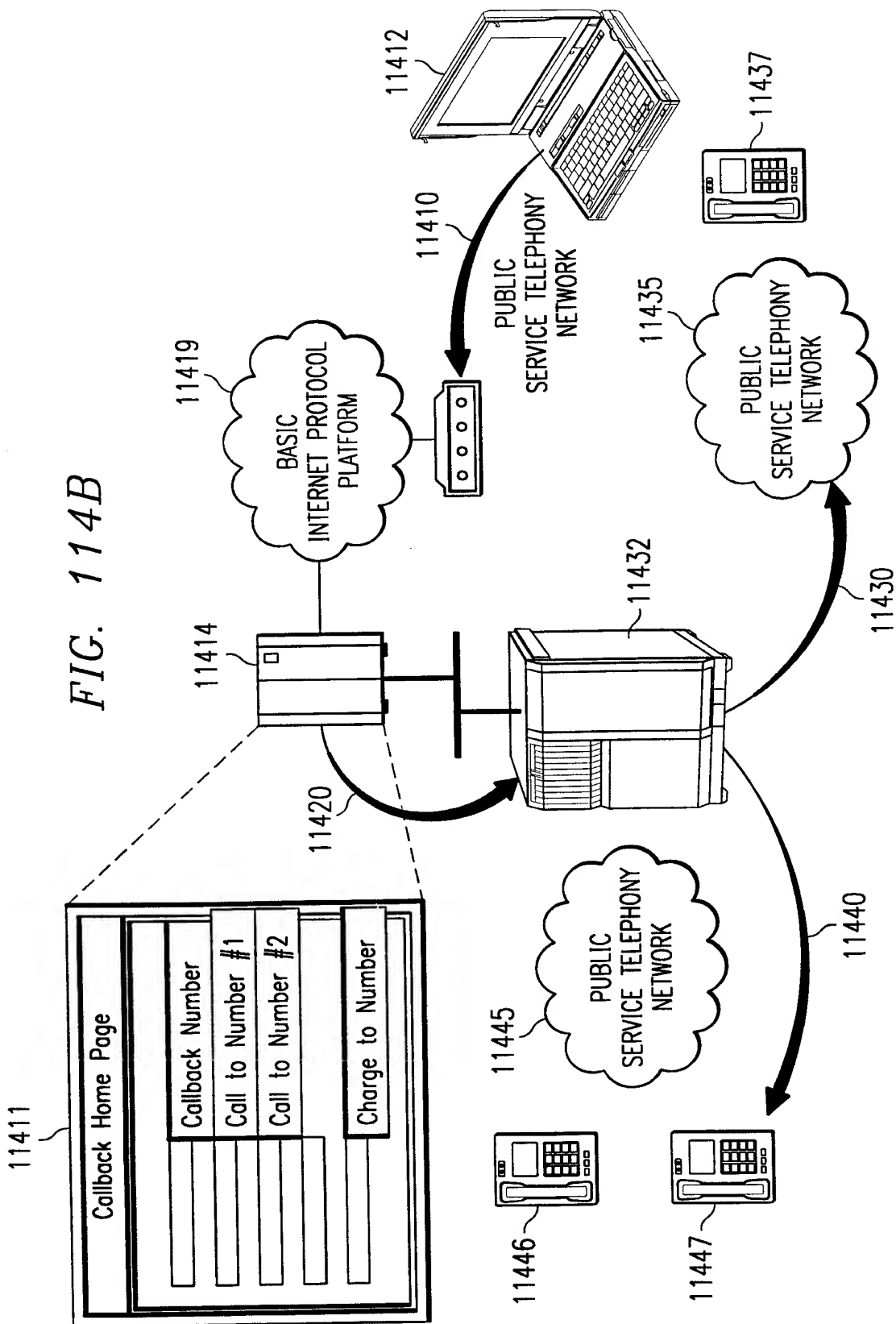


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FIG. 114A



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# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US 98/01868

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 6 H04M7/00 H04M3/48 H04L12/64 H04L29/06

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 6 H04M H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>MATTA I ET AL: "PROCEEDINGS OF THE CONFERENCE ON COMPUTER COMMUNICATIONS (INFOCOM), TORONTO, JUNE 12 - 16, 1994" PROCEEDINGS OF THE CONFERENCE ON COMPUTER COMMUNICATIONS (INFOCOM), TORONTO, JUNE 12 - 16, 1994, vol. VOL. 3, 12 June 1994, INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, pages 492-499, XP000496559 see page 992, left-hand column, line 1 - page 993, left-hand column, line 33</p> <p style="text-align: center;">--- -/--</p>	1,27

☒ Further documents are listed in the continuation of box C.

☐ Patent family members are listed in annex.

### ° Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

Date of the actual completion of the international search

6 July 1998

Date of mailing of the international search report

11 " 09 1. 11 98

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NL - 2280 HV Rijswijk  
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Fax: (+31-70) 340-3016

Authorized officer

Vandevenne, M

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US 98/01868

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>BOHN R ET AL: "MITIGATING THE COMING INTERNET CRUCH: MULTIPLE SERVICE LEVELS VIA PRECEDENCE" JOURNAL OF HIGH SPEED NETWORK, vol. 3, no. 4, 1994, pages 335-349, XP002055271 see page 340, line 28 - page 341, line 26 ---</p>	1,27
A	<p>DIEHL S: "DATA'S NEW VOICE" BYTE, vol. 21, no. 9, September 1996, page 129/130, 132, 134/135 XP000641466 ---</p>	
A	<p>LI C -S ET AL: "'TIME-DRIVEN PRIORITY" FLOW CONTROL FOR REAL-TIME HETEROGENEOUS INTERNETWORKING" PROCEEDINGS OF IEEE INFOCOM 1996. CONFERENCE ON COMPUTER COMMUNICATIONS, FIFTEENTH ANNUAL JOINT CONFERENCE OF THE IEEE COMPUTER AND COMMUNICATIONS SOCIETIES. NETWORKING THE NEXT GENERATION SAN FRANCISCO, MAR. 24 - 28, 1996, vol. VOL. 1, no. CONF. 15, 24 March 1996, INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, pages 189-197, XP000622310 -----</p>	

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US 98/01868

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
  
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-27

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

International Application No. PCT/US 98/01868

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

1. Claims: 1-27

Hybrid telecommunication system or computer program for prioritizing access and routing and storing a service control parameter in a memory coupled to the prioritizing access router.

2. Claims: 28-77

Hybrid telecommunication system comprising :

- one or more call routers
- a memory coupled to each call router and having stored therein a call parameter database, the call router being configured to provide an intelligent service platform
- an automated call distributor
- a call queue manager
- an agent workstation.

3. Claims: 78-131

Hybrid telecommunication system, method or computer program for initiating a callback session.